U.S. Surgeon General's Office

A HISTORY OF PREVENTIVE MEDICINE

IN THE

WORLD WAR II

EASTERN DEFENSE COMMAND BASES

This monograph is being made available in manuscript form pending the completion of the official History of the Medical Department in World War II, and must be considered as a draft subject to final editing and revision. Persons finding errors in facts or important omissions should communicate with the Historical Division, Army Medical Library, Washington 25, D.C.

It is emphasized that all statistical data in this monograph are tentative and subject to revision when tabulation of individual sick and wounded report cards has been completed.

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Governors Island, New York 4, N.Y.

29 Oct. 1945.

319.1 (Surg)

Subject: History of Preventive Medicine in World War II.

To : The Surgeon General, Historical Division, Washington 25, D.C.

1. The following history, covering preventive medicine activities from the inception of this command in November 1940 to the present, is submitted in compliance with letter, Office of The Surgeon General, ASF, file SPMCG, subject: "Coordination of Medical Historical Work", dated 28 July 1944. The evolution of the Eastern Defense Command throughout this period is outlined as follows:

9 November 1940 First Army
24 December 1941 Eastern Theater of Operations
and First Army
19 March 1942 Eastern Defense Command and
First Army
10 September 1943 Eastern Defense Command

- 2. The history of preventive medicine within this command has been divided into two parts Part I, Preventive Medicine Activities within the Continental United States; and Part II, Preventive Medicine Activities in the following base commands: Bermuda, Newfoundland, Greenland and Iceland. Inasmuch as the geographical locations of the base commands have given rise to certain unique preventive medicine problems, base command histories have been presented as a separate phase of this study. All base commands, however, are under the jurisdiction of this headquarters and, when appropriate, receive the same medical directives as are issued to continental units, and specific instructions where indicated.
- 3. In order that the problems of preventive medicine within this command may be more easily understood in relation to the composition of the command, a review of the early organization and medical aspects thereof is included.

FOR THE COMMANDING GENERAL:

/s/ William Vincent

/t/ WILLIAM VINCENT Captain, A.G.D., Ass't. Adjutant General

3 Incls.

Incl 1 - History, Continental U.S.

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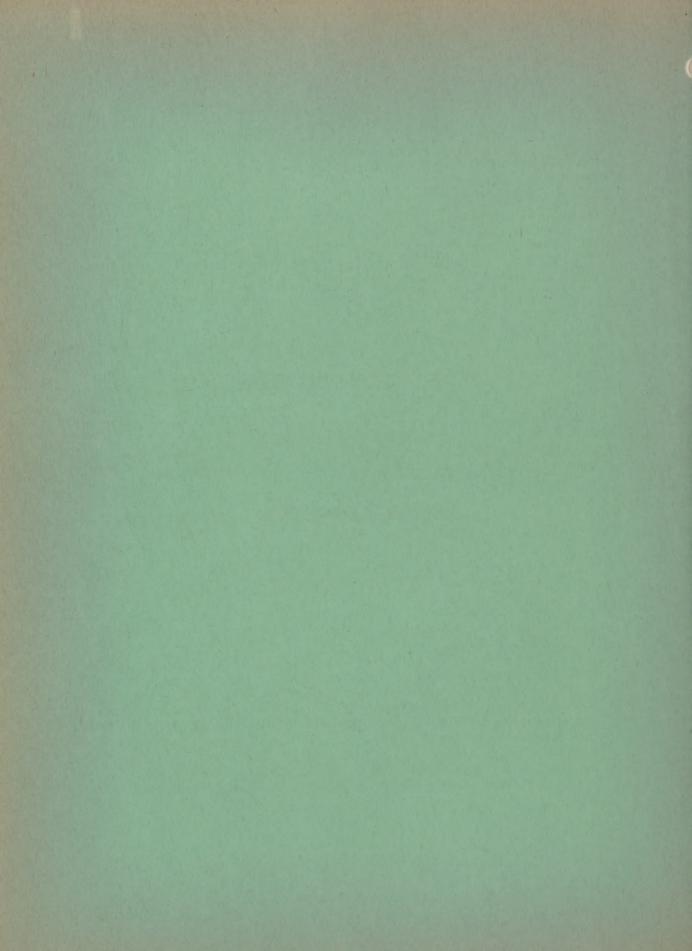
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PART I

HISTORY OF PREVENTIVE MEDICINE IN WORLD WAR II

EASTERN DEFENSE COMMAND

Continental United States



CHAPTER I

INTRODUCTORY REMARKS AND MANEUVER EXPERIENCE

- 1. The Office of the Surgeon, First Army, was instituted on 9 November 1940. For the most part, the First Army staff consisted of former members of the Second Corps Area staff in view of the fact that the First Army commander had been Commanding General of the Second Corps Area. At this time, the Surgeon's section was understaffed and it was not until 31 December 1940 that an adequate staff was authorized. On 14 January 1941 an additional officer with Public Health experience was assigned to the Surgeon's Office as Medical Inspector and the procurement of a medical officer late in the Spring of 1941 made it possible to assign to an officer the supervision of vital statistics.
- 2. When elements of the First Army were dispersed at various training centers among four corps areas, the major functions of the Army Surgeon's Office comprised administration and training. Corps areas were charged with a large measure of responsibility for the sanitation, preventive medicine measures, medical care and hospitalization of Army units located within their boundaries.
- 3. During the period when the First Army was concentrated in the Carolina Maneuver Area, a preventive medicine subsection was established.
- 4. One of the earliest matters given consideration was the securing of adequate information from tactical units, First Army, to permit maintaining at these headquarters vital statistical records sufficient to present to the Army Commander a picture of the current state of health of the command. Accordingly, on November 9, 1940, the Surgeons, First, Second, Third and Fourth Corps Areas were requested by letter, this office, to furnish a copy of the Weekly Statistical Report, WD MD Form 86ab, from each station where units of the First Army were located in the respective Corps Areas. It was preferred that this be accomplished by having the surgeon of each station concerned submit an extra copy of this report for transmittal to this office. Prompt cooperation was obtained from the First, Second and Third Corps Areas, but it was some time before complexities which arose in the Fourth Corps Area were straightened out. The following copies of correspondence between the Office of the Surgeon, First Army, and the Office of the Surgeon, Fourth Corps Area are believed to be of sufficient historical interest to warrant their quotation in full:

Subject: Medical Reports.

- To : The Surgeon, First Army, Governors Island, New York.
- 1. This office has been studying the matter of various medical reports with the hope of arriving at some practical solution whereby all concerned will be able to obtain the data desired with a minimum of duplication and which will be feasible while the troops are at station and in the field. The reports under consideration are Sick and Wounded, Statistical, Sanitary, and Venereal Disease Reports.

2. Sick & Wounded Reports:

- a. This Corps Area requires a Sick and Wounded report from each command to which a medical officer is attached. The reports of regiments and similar units are forwarded through the division surgeon to this office where they are checked for errors, except those pertaining to diagnosis and line of duty which are to be checked in the Office of The Surgeon General, and then forwarded to The Surgeon General. In many instances it has been found necessary to return these reports for resubmission. For instance, fifty-three out of ninety-seven reports for October were returned in their entirety. This indicates that medical personnel of field units are not now trained in the preparation of Sick and Wounded Reports. There should be marked improvement in this respect after studying the War Department manual on the subject, which has only recently been distributed.
- b. It is felt that Army surgeons have no particular interest in Sick and Wounded reports except perhaps to note as a matter of training whether the reports are being submitted as required by regulations. On the other hand, if found possible to do so, Army surgeons might consider it desirable to extract considerable information from these reports. However, to require these reports to go from the division through the corps and Army surgeons and thence to the Corps Area Surgeon's Office would cause considerable delay in their arrival at The Surgeon General's Office. If the reports were to pass from the Army surgeon to The Surgeon General direct, this office would have no opportunity to study the amount and character of illness taking place among the troops in the Corps Area, a matter in which the Corps Area is vitally interested. Furthermore, if the unit Sick and Wounded report, as well as that from the hospital pass through the Corps Area Surgeon's Office, there is an opportunity for checking the unit and hospital reports against each other for errors.

3. Statistical Reports:

a, Weekly Statistical reports first and second section, (Form 86ab), are received from station hospitals, nondivisional units having medical personnel attached, and divisions. Division reports are consolidated in the division surgeon's office for all units within the division. These reports are used in the Corps Area Surgeon's Office for the preparation of a consolidated Corps Area report which is forwarded to The Surgeon General. This section of the statistical report is the principal source of information upon which the Army surgeon depends for current data on epidemic outbreaks. It is likewise important to the Corps Area Surgeon. While at station in the Zone of the Interior, the Corps Area Surgeon, under the Corps Area Commander, will have more readily available than will the Army surgeon the necessary facilities for the correction of environmental and other influencing factors which give rise to and are necessary for the control of outbreaks of disease. It would therefore seem desirable to have this report rendered to the Corps Area Surgeon rather than to the Army Surgeon, but to also require unit surgeons to prepare an additional copy to be forwarded either direct to the Army surgeon, or through the corps surgeon, as may be desired.

b. The third section of the statistical report contains information which both the Army and Corps Area Surgeon must have. It is believed that this section of the report should be submitted to the Corps Area Surgeon and a copy thereof sent by unit surgeons either direct to the Army Surgeon, or through the corps surgeon, as may be desired.

4. Sanitary Reports:

Sanitary reports, monthly and special, are of much interest to the Army surgeon and Army commander as well as to the Corps Area Surgeon and the Corps Area Commander. The Corps Area has at its disposal means for the correction of sanitary defects which are not ordinarily available to the Army commander. On the other hand, the Army commander is directly responsible for sanitary defects within units of his command, especially while in the field. It is believed that both Army and Corps Area Commanders should have a copy of this report so that each may take appropriate action, the scope of which will depend to a great extent on whether the troops are at station or in the field.

5. Venereal Disease Reports:

There is at the present time considerable dissatisfaction with monthly venereal disease reports. Regimental and Similar units admit probable cases of venereal disease to sick report and transfer them to hospital with incomplete diagnosis. The report of the diagnosis made by the hospital commander, required by Army Regulations 40-235, reaches the unit surgeon too late to be included in the compilation of the weekly venereal reports. In other words, there is considerable lag in units in reporting venereal diseases. This report is important both to the Army surgeon and Army commander as well as to the Corps Area Surgeon and the Corps Area Commander. While at station the Corps Area Commander perhaps has a better opportunity to take action necessary to bring about a reduction of venereal diseases. The opposite will usually pertain while troops are in the field.

6. It is requested that a study be made of the best methods of submitting the above-mentioned reports, and this office be informed of your views with the hope that some practical solution may be found which will be agreeable to all concerned. In the meantime, it is considered that Army surgeons have the right under the provisions of Par. 2 e (2) (b), AR 40-1080, to require any additional reports which they may desire.

December 28, 1940

Subject: Weekly Statistical Report.

To : The Surgeon, First Army, Governors Island, New York.

- 1. Reference is made to your letter of November 28th, 1940, concerning weekly statistical reports. It is hoped that the procedure which will be outlined below will prove satisfactory for the time being. Another communication concerning the matter of medical reports in general has been mailed to you today.
- 2. There is mailed to you herewith copies of the statistical reports received from Forts Bragg, Moultrie, Screven, and Jackson, beginning with those of November 16th. Many of the First Army units in this Corps Area do not have attached medical personnel and the information pertaining to those units is

included in the reports rendered by station surgeons. These reports will include data pertaining to the personnel of a number of units other than those of the First Army. In view of the very large amount of work required of station surgeons at the present time it does not seem feasible to direct that they render separate reports for Army units. It is hoped that when the complement of medical officers is sufficiently increased it will be possible to prepare reports of a more satisfactory nature.

- 3. Letters are being addressed to the surgeons of the stations concerned, requesting that copies of the statistical reports containing data as to units of the First Army be forwarded to your office. It is suggested that your office more properly than this office may request copies of the consolidated divisional statistical reports and those of First Army units to which medical personnel is attached.
- 4. The following units of the First Army are now rendering weekly statistical reports to this office:

8th Division, Fort Jackson, S.C. 9th Division, Fort Bragg, N.C. 30th Division, Fort Jackson, S.C. 105th Obsn. Sq., A.C., Columbia, S.C.

January 16, 1941.

Subject: Medical Reports.

To : Surgeon, Headquarters Fourth Corps Area, Post Office Bldg., Atlanta, Ga.

1. Reference is made to letter your office, December 26, 1940, subject as above.

2. Sick and Wounded Reports:

a. Information contained in the weekly statistical reports is of value to this office in the maintenance herein of an index of disease incidence among units of the First Army. To this end, Corps Area Surgeons of the corps areas in which First Army units are located were requested on November 9, 1940, to furnish this office with a carbon copy of Form 86ab submitted by the surgeon of each station at which there are units of the First Army.

- b. Station reports, rather than unit reports, have been preferred since existent W.D. instructions required that there be only one Sick and Wounded register at unit training centers, and such register will contain all cases excused from duty because of sickness or injury. Furthermore, the station hospital records reflect a more nearly correct picture of illness from communicable diseases, than do records maintained by tactical units, since it not infrequently happens that unit surgeons do not diagnose cases admitted to station hospitals. The fact that a station weekly statistical report includes cases not belonging to tactical units does not materially alter the picture on a vital statistics chart, because of the relative numbers concerned.
- co It is appreciated that what has been said in the immediately preceding paragraph is applicable to a station like Fort Bragg, only with considerable difficulty. Nevertheless, the undersigned is at a loss to state requirements otherwise so long as War Department instructions hold. In this connection, it was learned while on a recent visit to The Surgeon General's Office, that instructions in FM 8-45 will be modified to require tactical units, while at unit training centers, to maintain a Sick and Wounded register, and to use Form MoDo 52 for quarters cases.
- d. This headquarters requires the surgeon of each tactical unit, First Army, to prepare and forward Form 86c, in the manner indicated in instructions covering the rendition of the reports.
- 4. This headquarters requires the surgeon of each tactical command, First Army, to render a monthly sanitary report. The rendition of the report will not preclude the inclusion of data it contains in station sanitary reports. While there is thus a duplication of data the requirement is essential from a training viewpoint.
- 5. Request has been made by this headquarters that it be placed on the mailing list to receive monthly venereal disease reports promulgated by corps areas concerned with First Army units. It is believed this will satisfy all requirements, and will hold while units are in unit training centers.

Subject: Weekly Statistical Report, Form 86ab.

To : The Surgeon, First Army, Governors Island, New York.

- l. Reference is made to a letter, this office, December 28, 1940, concerning the Weekly Statistical Reports. Through an error in this office the various stations concerned were not requested to forward Statistical Reports to your office. They have been instructed to forward such reports, beginning with that of February 8, 1941. We enclose herewith copies of the reports from Forts Bragg, Moultrie, Screven and Jackson, December 28th to February 1st, inclusive.
- 5. Monthly Sanitary Reports: a. Principally with the view of training medical officers of tactical units in the proper rendition of the monthly sanitary report, this headquarters on November 25, 1940, issued instructions requiring the surgeon of each tactical command, First Army, to render a monthly sanitary report and forward it with sufficient carbon copies to permit the retention of one at this Headquarters. It was not intended that the rendition of this report would preclude the inclusion of such data, or other matter, as might be necessary in station sanitary reports of stations at which tactical units of the First Army might be located for training.
- b. It soon became apparent that many of the reports that were ordered had been prepared either perfunctorily or without recourse to appropriate directives. This prompted the promulgation of the following instructions which purposely were made so replete as to leave little or no excuse for a continuance of illy prepared reports thereafter.

January 29, 1941.

Subject: Sanitary Reports.

To : Commanding Ufficers of Field Force Units, First Army. (Copies to: Commanding Generals, 1st, 2d, 3rd, & 4th Corps Areas)

1. References: Letter, Headquarters First Army, file number 721.5 (Surg. 0.) Subject: Monthly Sanitary Reports, dated November 25, 1940, to Commanding Officers of Field Force Units, First Army; AR 40-275

dated November 15, 1932; MF 8-40 (Field Sanitation). A copy of each of these should be in the possession of surgeons of tactical units, First Army.

2. <u>Instructions</u>: a. In the preparation of sanitary reports, the surgeon of each unit, for which a sanitary report is to be rendered, should bear in mind that the purpose of these reports is to keep commanding officers and higher administrative authorities in touch with current sanitary and health conditions of units reported upon. To this end, the report should be brief and concise and cover so far as practicable the subject matter outlined in AR 40-275 and any other information that the surgeon may consider of value to higher authorities.

b. The following form is suggested as an outline for the preparation of monthly sanitary reports by surgeons of tactical units, First Army:

	(UNIT)
721.5	(Station)
	(DATE)
Subject: Mon	thly Sanitary Report.
To: :	on Sharming amorphis developing Applica Application System Experimental Application Applic
Army, file No. tary Reports, the provisions ing sanitary i	ompliance with letter, Headquarters, First 721.5 (Surg. 0.) Subject: Monthly Sanidated November 25, 1940, and pursuant to s of paragraph 1 c AR 40-275, the follow-report is submitted for the month of, 19:
(1)	MEAN STRENGTH OF COMMAND FOR THE MONTH, () DAYS: Military
(2) (3)	Civilian ENVIRONMENTAL SANITATION: GENERAL STATISTICS: Mean strength of command, (Military personnel) for the() week period ending, 19 : admissions to sick report from all causes, (absolute numbers):

Rate per 1000 per annum for, 19	
Rate per 1000 per annum for , 19	<u>}</u>
Rate per 1000 per annum for the year, 19_	3
(4) PERSONAL HYGIENE: . The physical inspection of all troops as required by AR 615-250 was held on , 19 . (5) UNDUE PREVALENCE OF ACUTE COMMUNICABLE DISEASES: (6) NEW OR IMPROVED ADMINISTRATIVE MEASURES: (7) SUBJECTS NOT COVERED UNDER OTHER HEADINGS: (8) RECOMMENDATIONS:	
(SIGNATURE)	-
(RANK)	
(SURGEON)	_

- c. If the report is an initial report a statement should be added in paragraph 1 showing the exact period covered by the report. For example: This report covers the period from November 18 to 30, 1940; unit activated on November 18, 1940.
- d. Paragraph (1) Mean Strength of Command for the Month, Military. By this is meant the mean strength for the full month, 28, 29, 30, or 31 days, as the case may be. For this purpose the mean strength should be computed by adding the strength of command for each day of the period and dividing the result by the number of days in the month for which the report is rendered, using the nearest whole number.
- e. Paragraph (3) General Statistics: Mean strength of command (military personnel). This mean strength should be computed by adding the strength for each week (as shown on Weekly Statistical Reports, Form 86ab MD) of the previous 4- or 5-week period, as the case may be, and dividing the result by the number of weeks in the period for which the report is rendered, using the nearest whole number. Units not rendering a Weekly Statistical Report at the present time should

compute this strength by adding the strength of command for each day of the statistical period (4 or 5 weeks) and dividing by the number of days in the statistucal period, (28 or 35 days as the case may be). In preparing monthly sanitary reports it is noted that the surgeons of some units report word for word, the phrase-ology used in paragraph 1 c (3) AR 40-275, in recording general statistics. In recording comparative rates it is desired that the data be recorded in a uniform manner and be so arranged as to enable one to evaluate them at a glance. For example:

(* Other comparative rates not available inasmuch as unit was activated on _______, 19___, and this is the INITIAL REPORT).

BASIC FORMULAE FOR CALCULATING RATES

For a four (4) week period:

Rate per 1000 per annum:

Number of cases X 13 X 1000 Strength of Command

For a five (5) week period:

Rate per 1000 per annum:

Number of cases X 10.4 X 1000 Strength of Command

- fo Paragraph (6) New Or Improved Administrative Measures. New sanitary devices developed by tactical units, First Army, while in camp, which prove to be of special value, should be reported under this heading. This report should state the particular problem solved and a brief summary of the results obtained.
- 3. Special Sanitary Reports: When indicated, a special sanitary report may be rendered. The purpose of the special sanitary report is to place immediately before the commanding officers, information and recommendation regarding gross sanitary defects, epidemics, or other conditions that are seriously affecting or may immediately affect the health of the command. Such

reports will be forwarded to unit commanders for necessary action. Copies of special sanitary reports together with a brief outline of action taken by the unit commander will accompany the monthly sanitary report for the month in which the special sanitary report was submitted.

- 4. Channels of Transmission: The unit surgeon will forward the report to the unit commander. The unit commander concerned will transmit each report by indorsement noting action taken, if any, to correct sanitary defects and deficiencies reported, through appropriate military channels to the Commanding General, First Army.
- 6. On January 1, 1942, there were under the jurisdiction of this headquarters four Army Corps headquarters, eleven infantry divisions, the Antiaircraft Artillery Command, ETC, the various coast artillery installations along the Atlantic Seaboard, and the many separate Army and Army Corps Troops units. Included were some forty-three medical units, numbered general hospitals, evacuation hospitals, numbered station hospitals, medical regiments, medical battalions, sanitary companies, a general dispensary and a veterinary company. Later on the Air Forces EDC and First Air Force, and several base commands came under this jurisdiction.
- 7. During the early part of 1942 all of the army corps, all of the divisions but one, and all of the separate medical units were relieved from assignment to this command.
- 8. At the close of the year the Eastern Defense Command and First Army was comprised of: Air Forces EDC and First Air Force; the Antiaircraft Artillery Command, EDC; the Bermuda and Newfoundland Base Commands; the New England, New York-Philadelphia, Chesapeake Bay, and Southern Sectors; the Military District of Washington; the 26th Infantry Division, and Army Troops including a number of separate units, only two of which were medical units, viz. the 671st and 672d Collecting Companies (Sep).
- 9. With the formation of combat teams and their dispersion in small units and detachments along the coast in out of the way and often rather inaccessible places, the problem of maintaining adequate supervision of the medical welfare of the personnel became considerably magnified. One combat team, consisting of a regiment of infantry, a battalion of field artillery, a battalion of engineers and a company or more of quartermaster (truck) troops was assigned to each of the four sectors of this command. As the attached medical troops were obviously too few to meet the demands of the situation, detachments from two of the collecting companies of

the llith Medical battalion were attached (with ambulances) to two of the combat teams, and a collecting company (Sep) was provided by the War Department, upon request by this headquarters, for each of the other two teams. To provide coordination and correlation of medical activities within the team a combat team surgeon was designated. It was recognized that a surgeon on the staff of each sector commander was needed to fill the hiatus then existing between the combat team surgeon and this office. Therefore this matter was taken up with the Sector commanders and their concurrence obtained. This office recommended medical officers as sector surgeons only after a thorough canvass of the available personnel and the calling of several into this office for temporary duty where opportunity was given them to become acquainted with the many details of a surgeon's office, the staff responsibilities entailed, and their fitness for such a position determined.

- 10. The principal problem during this period was to provide efficient and adequate medical care and evacuation facilities for the troops stationed at isolated locations. Where units were stationed at or near a fixed post with an established station hospital there was no problem, but where small units or detachments were located at points some eighty to one hundred miles from the nearest station hospital, evacuation therefrom presented many problems: the time element involved in transporting a seriously ill or injured patient, the mileage necessitated for transportation, etc.
- 11. By assigning a collecting company to each combat team sufficient ambulances were made available to furnish adequate ambulance service, except in those instances where the excessive mileage as indicated above was concerned. Other personnel of the collecting companies were detailed as aid men, thus providing at least one trained corps man with each small detachment.
- 12. The problem of dental care and treatment for troops in these isolated spots was met by having the dental surgeon travel to the unit or detachment; taking his equipment by truck thus avoiding any disruption of unit activities and saving the time that would otherwise be required to take men to the unit head-quarters or nearest station hospital.
- 13. The assignment of Medical Department officer personnel created some difficulty and confusion earlier in that year. With the release of the many Medical Department officers of the command to units being prepared for overseas service, many of our units were depleted to such an extent that the rendition of proper medical care for the troops became a very real problem. Then as requisitions began to be filled by the War Department for medical officer replacements a new situation arose. These

officers would be assigned directly to units by the War Department and this office would not be cognizant of the fact until receipt of the next Statistical Report W.D., M.D. Form No. 86c. This system resulted in many administrative and other difficulties. It often resulted in new medical officers with no training in medico-military matters being ordered to units and by virtue of their high initial rank superseding the medical officer who had been efficiently serving the detachment for many months. Hence The Surgeon General was requested to make the assignments of these officers as a pool for reassignment by this office. This was approved and that method was inaugurated with satisfactory results. Questionnaires covering personal, professional, and military qualifications were prepared by this office and distributed to all Medical Department officers within the command and to the new officers as assigned to the pool. In this way a complete file was built up and assignments and reassignments were made so as to enhance the value of these officers to the service and at the same time improve the morale of the Medical Department officer personnel.

- 14. The need for veterinary service for units of this command within the continental limits of this country has been negligible as there are practically no animals to care for at present and the meat and dairy inspections are covered by the service commands. Hence it has never seemed necessary to ask for the assignment of a Veterinary officer to this headquarters. In the Base Commands and in the Air Forces EDC and First Air Force, Veterinary officers are assigned and the service is satisfactory.
- 15. With the change in the composition of this command there was no longer a sufficient need for a Dental officer in this office and therefore the Dental Surgeon was relieved for assignment where his services were more argently needed. With the dental clinics of the various station hospitals as supplemented by the dental officers of this command and the travelling dental teams as described earlier in this report, the dental situation was generally satisfactory.
- 16. Attached medical officers were available in sufficient numbers to render all medical treatment and care authorized within the unit. Patients were evacuated to the nearest station hospital when indicated. Close liaison with the surgeons of the sectors and the AAA Command kept this office in touch with all medical matters within the command and permitted prompt action when and where needed to improve the service. Throughout the year the statistical reports from the subordinate units indicated that the health of the command was very satisfactory.

- Eastern Defense Command, is organized to include supervision of all medical activities within this command pertaining to hygiene and sanitation, venereal disease control, vital statistics, sanitary inspections, epidemiology, dental service and veterinary service. Current information of health conditions in all organizations under Eastern Defense Command is constantly surveyed and instructions are issued when indicated to EDC units regarding practical measures to be employed for the preservation of health and the prevention of disease in order that military personnel of the Eastern Defense Command be kept at its maximum effective strength.
- 18. In view of the fact that the Statistical Health Reports (WD MD Form 86ab) submitted by units of this command did not reveal complete statistics for EDC military personnel, inasmuch as patients within the continental United States are routinely hospitalized in service command installations, a supplemental report was instituted in 1942 to account for all personnel confined in Army hospitals. The additional information contained in these supplemental reports has enabled the Surgeon, EDC to present a complete picture of the health of the command to the Commanding General. The supplemental report is not required from base commands since all hospitals at the bases are under EDC control and data extracted from the regular Statistical Health Reports from base commands presents a complete picture.
- A summary of Weekly Statistical Health Reports and supplements thereto was originated from the Office of the Surgeon EDC and the initial publication distributed for the week ending October 30, 1942. The summary was prepared to afford an uncomplicated comparison of admission and noneffective rates for sectors and base commands under the jurisdiction of this headquarters and to project graphically the health trends within this command. Commencing with the issue of the summary for the week ending 4 February 1944 this publication became a command report, thereby enhancing its value as an instrument for issuing pertinent instructions to lower units pertaining to general medical subjects and preventive medicine measures, and yet retaining the comparisons of admission and noneffective rates and the record of health trends from the former medical report. In addition, this report is used to further advantage by directing attention to current Medical Department publications and circulars and disseminating medical information to commanding officers and surgeons of Eastern Defense Command units. For those units of this command located within the continental United States at permanent posts. camps or stations, preventive medicine activities have closely paralleled those of service commands.

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20. In lieu of combat experience, the following account of the Carolina Maneuvers in the fall of 1941 gives a comprehensive view of medical activity within this command during the maneuver period.

First Army Maneuvers.

21. Preparations for Hospitalization.

a. From the viewpoint of adequately caring for casualties from army medical installations, the Carolina Maneuver Area was happily selected. This area, straddling the interstate borders of North Carolina and South Carolina, and covering eight counties in each of the abovenamed states, had its northeastern border in the vicinity of Fort Bragg, and its southwestern border in the vicinity of Fort Jackson. At Fort Bragg, there was a group of hospital buildings affording approximately 3000 beds; at Fort Jackson, the Station Hospital had a bed capacity of approximately 1800 beds. Furthermore, since troops at both of these places were to participate in the maneuvers, their vacated barrack buildings would become potential expansion space for hospital beds, when and if such space became necessary. It so happened that the larger of the two opposing maneuver forces was destined to be located in the northeastern portion of the maneuver area where the larger facilities for treatment in corps area medical installations were available. Both of these corps area medical installations were approximately sixty-six (66) miles from the field medical installations which were to be established in the rear areas of each of the two major opposing forces. It was thus apparent that no insuperable difficulties were to be encountered in transporting casualties from the field forces to corps area medical installations, within a reasonable length of time, and over wellsurfaced roads.

b. Letter, General Headquarters, The Army War College, Washington, D.C., March 18, 1941, Subject: Corps and Army Training, contained the provision that the First Army was to look to the Fourth Corps Area to arrange for the evacuation and care of casualties from army medical establishments. Thus there remained the necessity for the First Army to arrange for the necessary medical supplies for the field forces, field medical installations in the army rear areas wherein casualties could be collected and prepared for further evacuation to corps area medical installations.

c. One of the first problems to solve was to coordinate the divided responsibility, with respect to means for transporting evacuees, between the Fourth Corps Area on the one hand and the First Army on the other. In this connection, the First Army was

charged not only with providing for its own requirements but also for those of the Fourth Army Corps which was to be its opposing force during the second half of the maneuver period.

do In an effort to determine, for Fourth Corps Area purposes, the number of ambulances that would be required to transport evacuees from the two rear areas to the respective corps area medical installations, it was estimated that the strengths of the forces, from which evacuations to corps area installations were to be made, would be as follows:

During October:

At northern part of maneuver area, 104,500 At southern part of maneuver area, 46,400

During November:

At northern part of maneuver area, 223,600 At southern part of maneuver area, 69,500

- e. At the time the above estimates were made, it was not known definitely that the 30th and 44th Divisions would participate in the Carolina Maneuvers, in view of the fact that they were National Guard Divisions whose one year of service would terminate in September.
- f. For the purposes of planning, it was assumed that there would be a daily increment of sick of approximately 0.6 percent, two-thirds of which would remain under treatment in their cwn organizations, or in clearing stations. One-third would require evacuation to hospital installations in the army rear areas. It was felt that, if an evacuation hospital of 750 bed capacity were established both in the rear area on the morth and in the rear area on the south of the maneuver area, sufficient beds would be available to care for the normal number of evacuees daily from divisional and other units. Since there would not be much of a margim im the way of spare beds each day, especially im the evacuation hospital supporting the larger force on the north, it was assumed, as a safety measure, that it would not be feasible to do more than prepare patients in evacuation hospitals for immediate clearance to corps area medical installations. Consequently, 0.2 percent was taken as the figure, representing the number of patients for which ambulances would be required for evacuation from evacuation hospitals.
- g. On this basis, it was assumed the evacuation hospital on the morth would have to be cleared, during the month of October, once every 3-1/2 days, and, during November, twice every 3 days; the evacuation hospital on the south would have to be cleared, during the month of October, once every 8 days, and, during the month of November, once every 5 days.

h. Assuming that ambulances were to be used for the above purpose, it was estimated that the following number of ambulances would be required daily:

From the evacuation hospital on the north:
During October 37
During November 78
From the evacuation hospital on the south:
During October 17
During November 25

In presenting the above figures to Headquarters, Fourth Corps Area, it was learned that the required number of ambulances would not be forthcoming from that corps area, and that unless both ambulances and drivers to operate them were furnished by the First Army, that corps area would be unable to accomplish the evacuation of patients, by ambulance, from medical installations in the Army rear areas to corps area medical installations. It was apparent then that some means would have to be made available by the First Army to effect the clearance of the evacuation hospitals that were to be established. Army ambulances seemed to be out of the question, for, at the time in question, of the 678 ambulances allowed the First Army, only 353 were on hand, leaving a shortage of 325. Nor does this present the darkest side of the picture: there were only 20 ambulances in the two Army medical regiments; for one of these regiments, 22 ambulances were promised on September 15 and 30 on October 15; for the other regiment, none were promised until after October 15. Some consideration was given to the possibility of evacuating by train, but this possible method had the drawback of requiring the use of ambulances both for loading and unloading. Passenger buses held out a possible solution for the problem at hand provided a type in sufficient number and capable of being used for both sitting and litter patients could be obtainable. Translating ambulance loads into bus loads was accomplished on the basis of 1/10 of the patients being litter patients, each litter patient occupying the space of 4 seats. Thus a 34-passenger bus was considered capable of carrying an average of 25 patients, 3 of which would be litter patients, or the equivalent of 4 ambulance loads. Accordingly it was estimated that, to clear the evacuation hospital, to be established in the northern part of the maneuver area, during October, with a prospective daily admission of 358 patients, fifteen 34-passenger buses would be required. To clear the evacuation hospital, to be established in the southern part of the maneuver area, during October, with a prospective daily admission of 130 patients, five 34-passenger buses would be required. To clear the northern evacuation hospital, during November, with a prospective daily admission of 542 patients, would require twenty-two 34-passenger buses.

- j. The Commanding General, First Army, approved the plan of taking over from the Fourth Corps Area the evacuation of patients from army rear areas to corps area medical installations and of using commercial buses for the purpose.
- k. One might womder, without having full knowledge of the matter, how a commercial bus could readily be adapted to the carrying of litter cases without extensive alterations. In fact, the question was asked this headquarters by Go Ho Qo The solution of the problem, however, was simple. The New York Metropolitan Area had a bountiful supply of buses which during the summer months were used for trips of one sort or another and were not in great demand at the close of the summer season. Through the Quartermaster, First Army, contact was gained with a contractor who would hire the type of bus desired. This bus had an emergency door at the rear of the left side, sufficiently wide to admit a loaded litter. With a sufficient number of the rear seats removed, three loaded litters could be placed on the floor of the bus, leaving the forward seats for the estimated number of sitting patients.
- 1. Several factors influenced the kind of hospitalization facilities that were to be provided in the rear areas; namely, the necessity for having a sufficient number of suitable beds at each place to care for the expected number of daily admissions together with adequate facilities for the care of those patients, and the desirability of affording opportunity to the evacuation hospital training units of the First Army to become acquainted with the installation with which they were expected to function in actual warfare. Since there were but two army medical regiments and one was to be used on one opposing side, and the second on the other, at least during the month of October, it would be impracticable to use the clearing stations of either as simulated evacuation hospitals. Accordingly it was planned to requisition for two evacuation hospital equipments. In the selection of the prospective sites of the two evacuation hospital units, that on the south presented no difficulties, for the environs of Chester, S. C. were on the southern limits of the maneuver area, and no matter what changes there might be in tactical situations, its location, necessarily immutable, appeared to answer the requirements of tactical correctness. The selection of a site for the northern group could not be made to conform to orthodoxy, for it was only at the forward extremity of the First Army Troops area that all of the desiderata of an evacuation hospital site could be obtained; that is, at Rockingham, N.C. Thus there was to be an inevitable back tracking in the evacuation of certain of the First Army Troops located in the rear of the First Army Troops area.

Preliminary Water Arrangements.

22. The Army Engineer having made a preliminary survey to determine possible municipal sources of water in the maneuver area, steps were taken to determine the quality of the water from each source. A medical officer, qualified in public health work, was detailed as Surgeon of the maneuver area, and was charged with the collection of samples of water from all sources. These were examined bacteriologically at the Station Hospital, Fort Jackson, S.C. Based upon examinations made, as well as upon whether the municipalities concerned properly treated the water at source, determination was made as to requirement for full chlorination of the water before use by troops, or for partial chlorination to overcome possible recontamination in handling by troops.

Plans for Extra-cantonment Sanitation.

23a On July 14, 1941, correspondence with the State Health Officers of North Carolina and of South Carolina was initiated by this office with the view of holding conferences with these officers to consider necessary extra-cantonment sanitary measures to be taken for the protection of troops and citizens in the area involved during the First Army Maneuvers, October and November, 1941.

b. A representative of this office attended two meetings, held respectively on July 30, 1941, at Raleigh, N.C., and on July 31, 1941, at Columbia, S.C., under the auspices of the governors of North Carolina and South Carolina, to consider plans as set forth above. Each meeting was formally opened with an address by the Governor. The representative from this office outlined the problems, from the standpoint of the Army, presented by the sanitary aspects of water supply, milk supply, food handling, sewage disposal, control of hotels, restaurants, camps, tourist homes, roadside stands, and trailers, and by necessity for the adoption of stringent measures to control prostitution. Each meeting was thereafter conducted by the State Health Officer of North Carolina, and of South Carolina. Each presented a suggested public health program, either personally or through a subordinate. The North Carolina program was substantially identical in substance and wording with that of South Carolina. They covered the ground of extramilitary sanitation in an adequate manner, subject to adequate attention to the details enumerated in them before and during the maneuver period.

Sanitation during the Maneuvers.

24a. Because of the fact that Field Manuals 8-40 and 21-10 had been made available to personnel of the First Army, and of the further fact that the majority of the units of the First Army had had considerable experience in the field during the year preceding the Carolina maneuvers, it was felt that it was unnecessary to promulgate from this headquarters detailed instructions concerning sanitation in the field, as has been done for maneuvers previously held. It was a mistaken belief, however, to consider that, because the above referred to manuals were available, the personnel were familiar with the contents of them. This was especially true of nondivisional units. Generally speaking, base camps were maintained in a sanitary condition with respect to the disposal of wastes.

bo Foodstuffs were required to be protected from dirt, heat and flies. Each organization was required to provide the necessary screening or netting adequately to protect the food supply. Mess halls, kitchens, and canteens were required to be kept scrupulously clean. Food handlers were required to be examined physically prior to detail and to be inspected frequently as to their personal cleanliness. Vehicles for transporting bread, fresh meat and like exposed food supplies were required to be kept scrupulously clean. Field ice boxes, of a type to be buried in the ground, were furnished by the Quartermaster. When properly maintained, so as to assure maximum refrigerating effect, these improvised ice boxes were satisfactory. In many instances, foodstuffs were placed on top of the ice, the fact being lost sight of that cool air descends and, conversely, warm air rises. Ice should be placed on a rack above the foodstuffs.

co For the base camps, units were supplied with materials for the construction of latrine boxes. Lack of funds prevented the Quartermaster from having these boxes prefabricated. The lack of funds also prevented the purchase of galvanized sheet metal urinal troughs with pipe drains. Plans for the construction of the latrine box and urine trough (to be made of wood) were distributed by the Quartermaster, First Army. In many instances these plans failed to reach organizations, and, in many instances, even though they had been received, they were disregarded. In consequence, results were far from being uniformly satisfactory. One organization departed so extremely from the plan as to construct a latrine box that was about 2-1/2 feet in height; the seat holes were small and hexagonal in shape and placed too far back; the seat covers were hinged at the front of the box thus placing the sloping side of the box at the front. To see a person enthroned in an utterly unphysiological position on one of these boxes, with his feet six inches off the ground and his lower legs stuck out in front at a 45 degree angle, was startling to say the least. To go through the experience one's self, forced one to realize that here was a diabolical instrument designed especially to produce chronic constipation.

- d. While the plan for the latrine box was satisfactory, save for the fact that it made no reference to the necessity for a urine deflector, that for the field urine trough was not entirely so. This was due to the fact that, being made solely of wood, it was difficult to insure against leakage and to provide for a fly-proof means of conveying the urine from the trough to the latrine pit. Furthermore, the plan called for placing the opening of the trough drain six inches from its lower end, thus leaving an area impossible of draining.
- e. As was to be expected the greatest difficulty was experienced in maintaining satisfactory sanitation of the base camps of First Army Troops. These troops consisted in many instances of organizations, provisionally made up, in the maneuver area of companies that had come from various stations and to which there had never been attached any medical personnel. This was particularly true of service organizations, such as Quartermester regiments, Signal battalions, etc. Regiments of antiaircraft artillery also were especially faulty in observing sanitary regulations.
- f. Sanitation in bivouacs left much to be desired. One gathered the impression that troops felt, once they were away from base camps, all rules for observing sanitary regulations were off. Rubbish, waste paper, fruit skins, discarded sandwiches and food scraps, and, in certain instances, freshly deposited human feces were noted in and around many of the bivouac areas. Many units neglected to dispose of garbage properly, and, in some instances, garbage pits were totally inadequate for the amount of waste they were to receive. One always could tell when a unit had been fed on the roadside by the amount of litter left behind after the unit moved on.
- g. Mess gear washing of maneuvering troops presented a difficult problem. It was next to impossible to get sufficient water up to frontline troops to permit them to carry out the approved three-receptacle method of mess gear washing. There was no known satisfactory way of adequately heating the water for sterilization of the eating utensils, especially in concealed bivouacs at night. In consequence, the men resorted to the use of sand for removing remnants of food from the mess tins and knives, forks and spoons. This was a hazardous method because of the possibility of acquiring intestinal infections from the soil. Possible solutions of the problem included the use of paper linings for the mess tin, to be discarded after use, or in having available a blue gasoline flame in which the eating utensils could be held for a few moments until a temperature destructive to pathogenic bacteria was reached.

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h. The breakdown of rations for organizations, after the food in bulk had been transported from railhead to breakdown point, inevitably had to be done under circumstances that were far from ideal. Nevertheless considerably more care should be exercised to protect the food at this point than was the case in the Carolina Maneuvers. This applies with especial force to the prevention of intestinal infections acquired from the soil and surrounding environment.

Extra-cantonment sanitation.

25. During the greater part of October the weather was summerlike, and certainly sufficiently warm to foster the growth of malariabearing mosquitoes. Mosquitoes in the maneuver area, however, were
noticeable by their absence, which might be accounted for by the
prolonged drought that not only preceded the maneuver period but
also continued throughout it. In all justice, however, considerable
credit must be given to the State Department of Health of both North
Carolina and South Carolina for the thorough job they did in spreading oil on areas that were potentially mosquito-bearing, for, though
otherwise many cases of malaria might have developed among the personnel of the First Army, the records of patients that passed through
the evacuation hospitals showed that there were but 15 cases of
malaria so diagnosed.

Water.

26. a. Though a preliminary survey had indicated the satisfactoriness or unsatisfactoriness of available municipal water supplies throughout the maneuver area, weekly samples were obtained from these sources to assure an up-to-date record of the status of these water sources. Until the arrival in the maneuver area, early in October, of the 3rd Medical Laboratory, these samples of water were examined either at Fort Bragg or at Fort Jackson. After the arrival of the 3rd Medical Laboratory, the samples were examined by that unit.

bo Some of the municipalities filtered and chlorinated their water; the majority did not require any treatment, the source of the water being deep, driven wells. The water from those sources which did not satisfy First Army criteria was required to be chlorinated (one tube of calcium hypochlorite to one sterilizing bag of water); water from sources, which consistently proved to be free of contamination, was required to receive one-third of a sterilizing dose of calcium hypochlorite to one sterilizing bag of water to overcome possible recontamination between the water distributing point and the place of use.

c. The 5-gallon water can was used in the majority of instances for transporting water. Because of the similarity of this and the gasoline can, it was required that the water can have painted on it a 3-inch white band.

The Health of the Command during the Maneuvers.

- 27. a. Instructions issued prior to the maneuvers prescribed that the physical examination of enlisted men provided for in AR 615-250 would be completed prior to their departure from their home stations. The examination of food handlers was to be completed prior to arrival in the maneuver area.
- b. Instructions also were issued requiring that every individual who had not been vaccinated against smallpox during the immediately preceding three years was to be revaccinated. All individuals who had received but one series of typhoid inoculations were to be reinoculated, if the one series had not been received during the immediately preceding three years.
- co Syphilitic registers were required to accompany all persons under antisyphilitic treatment, and provisions were made for the administration of antisyphilitic treatment at the nearest clearing station, following the necessary local arrangements therefor. It was felt that from two to three months (the length of time most of the troops were in the field during maneuvers) was entirely too long a period of time, to withhold from troops requiring the arsenicals. Accordingly, arrangements were made to have on hand adequate supplies of neoarsphenamine and double distilled, sterile water for injections. These supplies were drawn by clearing stations and thus there was no interruption in the prescribed routine of the treatment of syphilities. There were no untoward results of this form of treatment in the field.
- do The estimated evacuation rate to clearing stations was about 4/1000. The actual rate for the First Army for the period was 2.3/1000 or considerably less than the estimated rate. One factor conducive to good health was the excellent weather during the maneuver period. There was very little rain and the troops were not subjected to those conditions which are conducive to the production of the respiratory group of infections. The common diarrheas were present in moderate number during the month of October when the weather was warm and flies prevalent. With the onset of colder weather in No-vember the flies became inactive and the common diarrhea decreased. Another factor partially responsible for the low evacuation rate was that the troops were fairly well seasoned.

- The evacuation rates to clearing stations for the three Army Corps were practically the same, that for Army troops was somewhat lower than those for the three Corps. The day to day evacuation rate to clearing stations fluctuated very little so that one may say that under the conditions prevailing in the Carolinas, and for seasoned troops, one may expect a maneuver evacuation rate daily of 2.3/1000 and base future plans on such figures.
- f. The evacuation rates to the 1st and 4th Evacuation Hospitals were almost identical, 1.6 and 1.5/1000 respectively. The day to day rate fluctuated very little. The estimated rate was 2/1000, which is in close agreement with the actual figure.
- g. The evacuation rate to fixed station hospitals was estimated at 1.5 to 2.0/1000. The actual rate was 0.5 to Fort Jackson Station Hospital and 0.9 to Fort Bragg Station Hospital, an average of 0.7/1000. The fact that this figure is lower than the estimated rate suggests that the evacuation hospitals were able to hold and treat more cases than was expected and that illnesses and injuries were on the whole of minor nature and such as could be cared for at the evacuation hospitals. The fact that more patients were treated in evacuation hospitals and fewer evacuated than expected attests the ability of evacuation hospitals to give effective and definitive treatment in the field under maneuver conditions.
- h. The total number of evacuations performed during the maneuver period was 52,633 or a daily average of 889. The daily average, patients in clearing stations and evacuation hospitals of the First Army, was 2.1 and 6.7 respectively.

Communicable diseases reported:

From clearing stations:

Chancroid	17
Chicken Pox	1
Common Respiratory Diseases	3,052
Diarrheal Diseases	1,898
Fever undiagnosed	6
German measles	3
Gonorrhea	192
Impetigo	1
Influenza	709
Lymphogranuloma inguinale	1
Malaria	3
Measles	1
Meningococcus Meningitis	5
Mumps	7
Pneumonia	15

Poliomyelitis Scabies Scarlet Fever Syphilis Tuberculosis Vincent's Angina From Evacuation Hospitals:	4 10 1 28 3 10
Bacillary Dysentary Chancroid Chicken Pox Common Respiratory Diseases Diarrheal Diseases German Measles German Measles Gonorrhea Impetigo Influenza Malaria Measles Meningococcus Meningitis Mumps Pneumonia Scabies Syphilis Tuberculosis Vincent's Angina	19 2 3 2,301 1,794 3 261 50 505 15 5 3 34 13 33 18
Deaths: Directly due to maneuvers:	
Motor accidents Airplane accidents Electrocution (accidental) Gunshot wound (accidental)	64 4 2 1
Total	71
Not directly due to maneuvers:	
Diving accident Suicide Poisoning (denatured alcohol) Poisoning (Jeweler's fluid) Poliomyelitis Uremia Perforated Peptic Ulcer Peritonitis	1 1 1 1 1 1 1 1

Septicemia	1
Lobar Pneumonia	1
Malaria	1
Coronary Heart Disease	1
Total	12
Grand Total	83

Venereal Disease Control:

- 28. a. During the First Army Maneuvers, 1941, certain problems pertaining to venereal disease arose which are presented together with their solutions.
- b. To assist the Departments of Health of the States of North Carolina and South Carolina in guarding troops against acquiring venereal disease, it was requested that each soldier contracting venereal disease in the Carolina Maneuver Area be questioned by the medical officer attending him, use being made of the subjoined questionnaire. When completed, the report was to be mailed to the Office of the Surgeon, First Army. The reports were then turned over to the appropriate representative of the State Board of Health for further action.

VENEREAL DISEASE QUESTIONNAIRE

Each soldier who has contracted venereal disease will be asked to answer the questions below:

Identity of Sex Contact

Name	
Description:	ColorAgeHeightWeight
	Complexion Hair Eyes
	Identifying scars, birthmarks, or tattoo marks
	••••••••••
Where do you	think she can be located

Contact Data

Time of s	ex contact: Date
Was woman	working at a house of prostitution? Address
Was woman	"pickup"?
	On streetWhere?
	Automobile
	Bar or tavern
	Dance Hall
	Tourist camp

Was she working at bar or tavern, dance hall, etc.?
Kind of work
Was woman a local resident?Address
Was woman a transient? Where is she staying?
Was there a "go between"?If 30, was he a taxi driver?
Bellhop?bartender?
waiter?other?o
Identity of "go between": give name or description, and place
where he works - name of taxi company, hotel, bar,
tavern, etc
Name of your organization: CompanyRegiment
Branch of Service

- c. As a morale measure, four recreation areas were created by the First Army. These areas included the principal cities in North and South Carolina within reasonable distances from the maneuver area. An area was assigned to each of the three army corps of the First Army; the fourth was assigned to First Army Troops. Permitting soldiers to visit relatively distant towns in these recreation areas over the weekend raised the question of emergency medical care for them and the prevention of venereal disease among them. With respect to the army corps, the problem was not a great one, for divisional troops were convoyed to the towns in large organized groups which contained essential Medical Department personnel and equipment. This was not true in so far as First Army troops were concerned. These troops, numbering approximately 44,000, were not organized into controlled groups for weekend purposes. Consequently, instead of having Medical Department personnel and equipment accompanying them on weekend visits, independent preparations were necessary to provide emergency medical care and venereal prophylactic measures. The principal towns in the First Army troops recreation area comprised Burlington, Durham, Fayetteville, Hamlet, Laurinburg, Raleigh, Rockingham, and Sanford, all in the State of North Carolina. Fort Bragg maintained permanently established venereal prophylactic stations in Fayette~ ville and Raleigh. To the remaining towns details from the 16th Medical Regiment were sent each Saturday morning, there to set up and maintain until Sunday night appropriate facilities for first aid and venereal prophylaxis for troops visiting the towns. Information covering these matters was promulgated from First Army Headquarters.
- d. The program of the State Board of Health of North Carolina for the suppression of prostitution in the maneuver area encountered an insuperable barrier in the practically complete failure of the law enforcement officials to prosecute prostitutes. Justices of the peace and judges refused to hold those actually caught in the act of prostitution unless the man with whom they

were cohabiting appeared against them and produced definite evidence of the transfer of money. Houses of prostitution were placed off limits by the military, but circumventing the countless prostitutes who needed only an automobile and the wide open spaces was next to impossible.

CHAPTER II

SANITATION

1. Clothing:

- a. During 1942 clothing for all troops under the jurisdiction of this command consisted of the regular authorized issue.
- b. On 15 January 1943, 45,895 sweaters, wool, o.d., knitted by the ARC were allocated for issue to units of this command by the War Department. These were distributed throughout the command and proved of material value to the comfort of the troops during the winter of 1943.
- c. Because of the tactical mission of certain troops assigned to this command along the North Atlantic Coast requiring 24 hour alert status and the severity of winter weather on sentries, observers, gun crews, etc., overcoats, Parka type were authorized for 50% of enlisted personnel of fixed antiaircraft units located north of Boston, 21 July 1943. This authorization was extended to include 50% of strength of tactical units located in all harbor defenses north of and to include the Harbor Defenses of New York on 4 January 1945.
- d. During April 1944, attempts were made to procure the new test type summer uniform, consisting of the khaki shirt with sport collar and short sleeves, and khaki shorts and kneelength woolen olive-drab socks for troops stationed at Key West, Florida. This request was unfavorably considered by the Secretary of War due to unsatisfactory conditions developed during the experimental stage, among which were the prevalence of insect bites on that portion of the leg between the top of the sock and the bottom of the shorts.
- e. Other than the above, clothing for Eastern Defense Command troops consisted of those authorized by unit T/0 & Es.

2. Housing:

a. Troops of Eastern Theater of Operations and First Army and after March 1942, Eastern Defense Command and First Army, stationed at points north of the Carolinas were all housed in buildings, either at fixed posts or, as in the case of some combat team units, in leased buildings or in hutments erected at strategically situated locations. Some units stationed south of

the Carolinas were housed in tents. Housing problems during this period of expansion consisted principally of getting the construction work accomplished fast enough. In order to speed up construction, this command was authorized to order emergency construction direct from the District Engineers not to exceed \$20,000 per project.

- b. At this time also the Antiaircraft Command expanded and extended their installations in small detachments all around industrial centers along the coast. Special combination type hutments were designed and constructed in isolated areas where buildings could not be leased and where only small detachments had to be housed.
- c. Environmental conditions, during and immediately following this emergency construction, were extremely unfavorable due to mud, inaccessability of gun positions and hutments, locations near swamps, dumps, etc., necessitated by strategic position of the guns. Because of the above, much care was exercised locally by unit personnel and supervised by Medical officers in an effort to reduce health hazards from exposure, insects and rodents. Water in many cases had to be hauled in with the rations.
- d. As a result of an increase in respiratory diseases that occurred during the latter part of 1942 and reached a peak of 389 per 1000 per annum during the second week in 1943, a study was made of the reduced floor space allowance per bed per man as set down in letter, WD AGO file 600.12 (9-21-42)OB-S-SPNC-M, subject: "Reduced Space Allowances at Posts, Camps, and/or Air Force Stations", dated October 21, 1942.
- e. This study revealed that a reduction of bed space below 60 square feet per man inevitably resulted in an increased incidence and spread of respiratory diseases with consequent increase in noneffectives and deaths from disease. A directive was issued to units of this command to the effect that, where shortage of critical materials or lack of space necessitates, the provisions of the letter cited above would be followed. However, commanders would take all possible steps to relieve crowding of troops in sleeping quarters in order to avoid a future epidemic of respiratory diseases.
- f. Since September 1943 when the First Army was physically separated from the command, there have been no particular housing problems. Since the above date the Eastern Defense Command has been periodically reduced in strength making the necessity for new construction unnecessary. Housing for troops of the Eastern Defense Command consisted of permanent barracks, T/O semipermanent barracks, temporary barracks, hutments and, in the case of the Antiaircraft Artillery Command, from Newport mansions and stables to space adopted in the pier towers of drawbridges. In general, all housing is adequate and satisfactory.

3. Food & Nutrition:

- a. Eastern Defense Command troops in Continental United States have received the Army Field Ration except when on maneuvers or field problems at which time C, D or K rations were used for training purposes. The adequacy of the diet consumed by all troops has been satisfactory and the nutritional state of the troops is excellent.
- b. During First Army Maneuvers in 1941, an instance of acute food poisoning occurred in the 9th Infantry Division which was considered sufficiently important to publicize to the command. In this case, ten officers riding in a truck drank some orangeade prepared in a new metal container several hours earlier. Shortly afterwards all officers experienced nausea, followed by vomiting and severe abdominal cramping pains. These officers had acute, chemical gastro-enteritis, ultimately traced to the orangeade made in a container labelled "Hot Aervoid Cold, Food or Liquid Carrier, Vacuum Can Company, Chicago, Illinois." While the inner pan of this item was purportedly made of nontoxic metal, the outer container, used in the preparation of the beverage, was plated with cadmium, a toxic metal readily soluble in acid fruit juices. Hence while the use of the outer container violated the manufacturers instructions, it was felt that the requirements of night feeding in blackout surroundings, the frequent changes in personnel and inability to read directions in the darkness all operated to prohibit the use of such containers. In addition to outlawing this particular item, troops were also cautioned regarding the danger incident to the use of all metal containers, especially zine-plated containers, for the preparation of acid beverages such as lemonade. This warning was again circulated to all units of the command in May of this year, and a similar directive is contained in the current WD Circular 138.
- c. In January 1944, an outbreak of food poisoning occurred among personnel of the 540th AAA AW Bm, Quonset Point, Rhode Island, but this instance was traced to a violation of rules for proper preparation and serving of food. The causative organism was staphylococcus aureus, occurring in bread pudding left standing overnight, unrefrigerated and uncovered. Unit surgeons were directed to make pertinent recommendations to their commanding officers in order that mess personnel might be kept currently instructed and alert to the sanitary principles of proper mess management.
- d. Following First Army maneuvers, the only difficulties that arose were in units and detachments at outposts along the coast and these were gradually solved. One of these problems was the loss of milk from damaged paraffined cardboard quart containers

that were improperly handled and hauled long distances to outposts. This situation was corrected, where necessary, by using bottled milk.

- e. At one outpost contaminated milk was found. The milk at this outpost was being supplied in 40-quart containers. Possible sources of the contamination were: rusty cover on the container, dipping utensils, carelessness and/or contamination caused by personnel handling the milk, returning milk to the can, length of time from pasteurization to consumption, transportation under questionable refrigeration. Authority was denied to purchase bottled milk at that time. Instruction in the proper handling of milk to prevent contamination was given to all personnel having occasion to handle this milk and the situation was corrected.
- f. During June 1943 this headquarters received authority from the War Department to increase specific components of the ration by not more than 10% for messes of fifteen men or less. With this increase it was still very difficult for battalion, regimental and battery agencies to break down the Army ration so as to supply a sufficient amount of food to small detachments located at outposts along the coast. As a result of the difficulty encountered, special short courses were established at Fort Jay, N.Y., to train ten (10) cooks and five (5) mess sergeants monthly in the economical and equitable breakdown of rations and in meat boning and trimming for 15-man messes.
- g. Periodic inspections of organizations under the jurisdiction of this headquarters disclose that much attention is given to the care and preparation of food. Storage, handling and serving of food has been satisfactory. Through pertinent War Department directives and instructions issued by this headquarters, all elements of the command have been informed concerning conservation of food.

4. Personal Hygiene:

a. In view of the tactical mission of this command, with many troops located in isolated outposts and undergoing physical hardships, emphasis has been placed upon individual aspects of Personal Hygiene and Preventive Medicine and Physical Conditioning. This phase of training has received special attention through training directives, supervision and inspections. The following Training Memorandum #13, dated 20 December 1943, was initiated by this office and provided for a minimum of 1 hour per week to be utilized in instruction on subjects pertaining to the health of the individual.

"HEADQUARTERS EASTERN DEFENSE COMMAND Governors Island, New York 4, N.Y.

20 December 1943.

TRAINING MEMORANDUM)

NUMBER

13)

TRAINING OF ENLISTED PERSONNEL IN PERSONAL HYGIENE AND PREVENTIVE MEDICINE

Reference: - Training Directive 1-43, Par. 5a (2) dated 20 March 1943.

1. PURFOSE: - In order to maintain the health of troops in the highest possible state, it is essential that each individual have a thorough knowledge and understanding of all measures available to him to prevent disease or injury and to alleviate the suffering and complications arising therefrom. Recent inspections have demonstrated deficient training in First Aid; for example (1) methods of control of bleeding, and (2) the contents and use of the First Aid Packet. It is particularly important to stress the fundamentals of personal hygiene, preventive medicine, and field sanitation as pertaining to the individual, not only as related to the present situation but with a view towards future developments. This training assumes greater importance as American troops, in increasing numbers, are being exposed to more and new diseases from all over the world. It is believed further that this latter subject, if properly handled, will vary the monotony of routine training programs.

2. SCOPE:- Training shall consist of a minimum of one (1) hour per week, and include such personnel as may be designated by the commanding officers. It is desired that a carefully planned, coherent, and progressive program be outlined to include all phases of personal hygiene, applicable phases of preventive medicine, field sanitation, first aid, venereal disease control, and any other subjects pertaining to the health of the individual.

- 3. GENERAL INSTRUCTIONS: a. The unit surgeon, through normal command channels, will either conduct the training or designate suitably qualified personnel therefore and exercise the necessary supervision thereof.
- b. Subjects will be repeated as necessary to insure that all will receive this instruction.
- c. Local Medical Department personnel will be used as instructors wherever practicable. They will:
- (1) Exercise originality and avoid "canned" or "bottled" text book lectures as far as possible.
- (2) Make full use of training films and other training aids.
- (3) Utilize "demonstration and application" wherever feasible.
 - (4) Use layman's language.
- (5) Avoid crowding too much into one lecture. It is far better to thoroughly establish one principle or procedure, than to mention many which may be immediately confused and forgotten.
- (6) Encourage questions and allow an ample period for discussion at the end of each class.
- (7) Stress the care observed by the Army in the selection and preparation of food, to provide a well-balanced diet, and to insure against the dangers of food contamination or spoilages.
- (8) Emphasize particularly the necessity for the early reporting of any illness to a medical officer in order to avoid additional opportunities for infecting others and prolonged hospitalization of the individual.

4. REFERENCES:

PERSONAL HYGIENE	Chapter	9	FM 21-10
FIELD SANITATION			FM 8-40
Nature & Control			
of Communicable		_	*****
Diseases	Chapter	2	FM 21-10
Prevention of			
Respiratory Dis-			
eases	Chapter	3	FM 21-10

PERSONAL HYGIENEFIELD SANITATION Prevention of Intestinal Dis- eases and Sterilization of	(Continued)	
Water	Chapter 4	FM 21-10
Prevention of Insect Borne Diseases	Chapter 5	FM 21-10
-		
FIRST AID		FM 21-11
First Aid	Chapter 10	FM 21-10
First Aid		TM 8-220
Splints, Appliances & Bandages		FM 8-50
-branch abbrication or partical co		I III 0-)0
VENEREAL DISEASE CONTROL		AR 40-210
Venereal Disease Control	Chapter 6	FM 21-10
Venereal Disease Control	Section 6	-
	Chapter 5	TM 8-220
Venereal Disease Control	Pertinent W	
	and Letters.	0

By command of Lieutent General GRUNERT:"

- b. The training directive for 1944 for units of this command provided for a minimum of two (2) hours weekly training for all personnel until individuals and units attain the standards of proficiency set forth in WD Circular No. 48, 3 February 1944. Thereafter a continuing health education program insures the maintenance of this proficiency.
- c. On 6 September 1944 all EDC units were directed to include in their training programs instructions pertaining to the prevention of Trench Foot in accordance with the provisions of Section IV, WD Circular No. 312, 22 July 1944.
- do Monthly physical examinations are conducted for all troops of this commando

5. Water:

a. Water purification in the field has been discussed in Section I Maneuver Experience. Just prior to this period, in 1941, First Army Headquarters received notice from the Office of the Chief of Engineers, Washington, D.C., to the effect that the storage or transportation of drinking water in containers that had previously contained gasoline constituted a considerable health hazzard due to the highly toxic residue of lead remaining in the

cans. Inasmuch as no reliable method of cleaning these cans was known, a directive was issued to all troops prohibiting the use of such contaminated containers for transporting water. As a further precaution to differentiate between the almost identical 5-gallon water and gasoline cans, a system of marking the water cans with orange-yellow paint was adopted which proved quite satisfactory.

- It was also noted that when water was allowed to stand in the new type five gallon water cans for several days, an exothermic chemical reaction appeared to take place which caused a sediment to form in the cans, the quantity of which was considered detrimental to health. Analysis conducted by the Army Medical Center and the Station Hospital, Fort Bragg, N.C., indicated that when water was added to the cans, a very minute amount of zinc was dissolved, not only by chlorinated water but also by distilled water, thus causing large amounts of calcium and magnesium precipitates from the hard water. The chalky white coating inside the containers was made up of zinc carbonate and zinc oxide. Both of these conditions combined to produce a metallic zinc taste and to create a milky, unpalatable appearance of the water which rendered it far from appetizing. This problem was alleviated by advising troops to thoroughly rinse the cans before filling and to invert and drain the water cans when emptied.
- c. At outposts, water has been obtained from many and varied sources and is chlorinated before use. When First Army troops were in the field in 1941, instructions were issued directing the chlorination of all water drawn from distributing points, by the use of ampoules of calcium hypochlorite in sterilizing bags.
- d. For Eastern Defense Command troops within Continental United States located on permanent posts, water supply has been a service command function and has presented no problem with the exception of an incident at Fort Story, Virginia. In the summer of 1944, a serious health hazard existed at that post and its environs due to inadequate water supply for summer needs, together with the possibility of gross contamination of water due to back siphonage of sewage when the water dropped below a critical level. This matter was brought to the attention of both the civilian authoristies and the higher military echelons of Command, including Third Service Command, Southeastern Sector, and the Fifth Naval District. After consultation with the Sanitation Officer, Station Hospital, Fort Story, Va., it was determined that this scarcity of water was due to two causes:
 - (1) The summer drought
- (2) The excessive number of military personnel, especially Naval enlisted personnel who visited Virginia Beach on liberty and overtaxed its water facilities.

- e. Pending the completion of a new 20-inch water main, a number of expedient measures were adopted to temporarily solve this sanitary problem. It was determined to declare Virginia Beach and its environs off limits to all military personnel, thus building up a sufficient reserve to provide water pressure adequate to enable all latrine facilities to function properly. Close plant supervision by the town was carried out, concurrent with the adoption of a water conservation program. Typhoid immunizations were offered to all dependents of military personnel and boiling of water was recommended as a temporary measure to all concerned.
- f. All installations under the jurisdiction of this command submit specimens of drinking water to the appropriate military laboratory for bacteriological examination as required by Army Regulations and letter this headquarters, file 671 (Surg), subject: "Bacteriological Examination of Water," dated 4 January 1944. This procedure is required routinely each month or at more frequent intervals when indicated.

6. Disposal of Waste:

- a. Mess sanitation including waste disposal within the command has been continuously followed through inspections and appropriate directives, and has been satisfactory.
- b. The provisions of the following letter concerning mess sanitation have been complied with satisfactorily within this command.

HEADQUARTERS
EASTERN DEFENSE COMMAND AND FIRST ARMY
OFFICE OF THE SURGEON
720 x 721.5 Governors Island, N.Y.

April 12, 1943

Subject: Common Diarrhea and Dysentery Control.

- To : Surgeons of Field Force Units, Eastern Defense Command and First Army.
- 1. The health record of the Eastern Defense Command and First Army has been relatively excellent and the energetic efforts of the unit surgeons in the field of preventive medicine have been very commendable.
- 2. Unit surgeons are expected to be particularly watchful, in the forthcoming seasons, in order to prevent inexcusable outbreaks of common diarrhea, amoebic or bacillary dysentery.

- 3. Alert, careful, unexpected sanitary inspections and prompt, corrective recommendations will insure that:
- a. The water source is protected, periodic water samples are checked bacteriologically, chlorination where needed is adequate and that water is always potable.
- b. The food, mess halls and latrines are thoroughly policed and screened at all times, and that the site of latrines in relation to mess halls conforms with Army Regulations.
- c. An adequate early fly control program will be initiated to eliminate or fly proof fly breeding focal sites such as manure and compost heaps, dumps, open pit latrines, etc. Screens, fly paper, fly swatters, fly sprays and fly traps will be used early and continuously during the fly season.
- d. Kitchen personnel will be held strictly accountable for their share of fly control responsibility.
- e. Food handlers will be trained in the important simple hygienic habits and will maintain proper cleanliness of person and dress. Cleanliness of hands, nails and freedom from skin infections and acute upper respiratory infections will be particularly stressed.
- f. Food spoilage will be avoided by proper menu planning, adequate refrigeration and by not retaining leftowers too long. Meats and salads will not be prepared more then four (4) hours prior to serving. Ground meats, egg, mayonnaise and cheese spreads will not be used as sandwich fillers unless prepared just prior to consumption. Shallow pans only will be used for storage of these foods in the refrigerator.
- g. Dishes and mess gear will be properly washed, sterilized by the proper use of boiling water or chlorination and air dried.
- h. Proper policing and disposal of garbage and wastes will be attended to promptly. Garbage cans will have tightly fitting covers, will not be overfilled and, when emptied, will be thoroughly scrubbed.

i. Diarrhea or dysentery cases will be promptly segregated and studied as to type and source of infection or dietary indiscretion. Civilian sources of these conditions, if necessary, will be promptly recommended for posting as "off limits."

For the Surgeon:

- c. Sewage disposal has presented no problems and has been satisfactory.
- d. Garbage disposal has consisted of many means. Edible garbage is usually handled by civilian contract, or in some instances has been disposed of along with unedible garbage by incineration. More recently burial at a sanitary fill has replaced incineration at some stations.

7. Control of Insects:

a. Flies:

- (1) The early institution of a Fly Control Program as directed in letter Headquarters Eastern Defense Command and First Army, subject: "Common Diarrhea and Dysentery Control," dated 12 April 1943 and its continued prosecution made the presence of excessive numbers of flies at installations of this command an infrequent occurrence.
- (2) Another fly and mosquito control program, inaugurated in all organizations of this command during March 1944, aided materially in eliminating excessive numbers of flies and other pests and disease-bearing insects.
- (3) During an inspection of units located in the southeastern portion of the United States in the Summer of 1944, screening was found generally to be inadequate. A campaign was recommended and publicized throughout the command to stimulate interest in this direction and to encourage repairs by camp personnel, rather than to call upon engineers for minor projects. Considerable improvement was noted on subsequent inspections.

b. Mosquitoes:

(1) During 1942 drainage and ciling about fixed posts was carried out by service commands. It was not considered feasible to undertake extensive anticosquito measures for the protection of troops of the combat teams at the many small outposts along the shore. By virtue of the mission of the Eastern Defense Command, the largest proportion of the assigned troops have been stationed

along the coastal waters and mosquitoes have continually constituted a seasonal nuisance. Although the incidence of malaria has continued to be low within this command, there was one significant outbreak which occurred during the Summer of 1943 in the vicinity of Georgetown, S.C. Four cases of malaria appeared within one small unit simultaneously. Three of these were of the Estivo-autumnal type and one of the benign tertian variety. Malaria in this area is endemic (1941 survey showed 1% positive smears) and the Anopheles Quadrimagulatus and Anopheles Crucians are prevalent. The proximity of the military outpost to unscreened negro dwellings and outhouses, where Anopheles Quadrimaculatus were trapped repeatedly, indicated a probable reservoir. Requests for antimalaria measures were directed to both the State Health authorities and the respective service command, and individual antimalaria discipline was enforced. No new cases have subsequently appeared in this area. The following letter was initiated and pertinent information obtained was forwarded to the U. S. Public Health Service and respective service commands:

HEADQUARTERS

EASTERN DEFENSE COMMAND AND FIRST ARMY

725.11 Governors Island, New York 4, N.Y.

(Surg) 4 September 1943

Subject: Disease Bearing Mosquitoes.

To : Commanders, All Units, EDC and First Army.

- 1. The disease bearing mosquitoes of malaria, yellow fever, filariasis and dengue are assuming an increasing importance at this time of rapid transportations, widespread transfer of personnel, return of sick and wounded and global importation of prisoners of war.
- 2. In view of the above, it is desired that unit commanders submit recommendations with survey data and area maps for effective mosquito control when in their opinion there is need for instituting control measures. Information as to types of trapped mosquitoes will be noted and forwarded.

By command of Lieutenant General DRUM:

/s/ Ca Za Shugart /t/ Ca Za Shugart Colonel, A. G. D., Adjutant General

- (2) During 1944 all cases of malaria which occurred in this command were recurrences of malaria in troops returned from foreign duty. Such cases were promptly hospitalized for treatment and assigned to organizations in localities where the anopheles mosquitoes are either absent or present in small numbers.
- (3) Early in 1944 an excessive number of anopheles mosquitoes, as well as excessive numbers of the pestiferous varieties, were discovered in the area surrounding the 21st Coast Artillery camp at Camp May Point, New Jersey. In view of the above and the fact that men with past histories of having had malaria were assigned to this camp from overseas stations, an active antimalaria campaign was inaugurated. The local township was cooperative and expended considerable effort and money in draining the swampy areas in the vicinity of the camp. They stated, however, that it would be useless to go farther with the program unless the Army was willing to ditch the camp area which included a part of the offending marsh. As a result, the Army engineers made a survey and recommended an appropriation of approximately \$10,000 to carry out the Army's obligation in this enterprise. This money was appropriated but by June 1945 no work had begun. This delay is explained by labor shortage in the vicinity. As an additional precaution from a public relations and epidemiological viewpoint, those individuals at the camp with malaria histories were promptly transferred to anopheles-free areas within this command.
- (4) During the Summer of 1944 a request was received by this headquarters from an outpost, where mosquitoes were creating a serious pest problem to the extent that efficiency and morale were impaired, for additional amounts of insecticide for use in barracks and mess halls. This unit was receiving only one gallon per battery per month, however additional amounts were authorized, which was sufficient for their needs.
- (5) The training program for Malaria Control and Malaria Discipline, as outlined in WD Training Circular No. 108, dated 21 September 1943 for all personnel, and the training of special details as directed in paragraph 3b, WD Circular No. 223, dated 21 September 1943 was completed throughout the Eastern Defense Command by 15 December 1943. This phase of training was covered during 1944 in accordance with the provisions of WD Circular No. 48, dated 3 February 1944.

c. Ticks:

Ticks are prevalent in many outpost areas. One case of Rocky Mountain Spotted Fever with ensuing death was reported from a unit stationed in a tick-infested area in Virginia in 1943. The clinical course of this case indicated a highly virulent strain of Rickettsia. The following directive, dated

18 June 1943, was issued to all unit surgeons as a precautionary measure. The same directive was reissued on 9 May 1944.

This office desires that all unit surgeons recommend the following preventive procedures:

- (1) That details working in tick-infested areas be instructed how to avail themselves of protection by wearing the trouser legs of the fatigue uniform inside of socks (high, thick woolen socks, if available, with tops to be taped to trouser legs) and by snugging in the shoe tops, wrists and neckband. When available, the interposition of strips of greased felt or other absorbent material at the neckband, wrists and shoe tops will give added protection.
- (2) That bodies and clothes be inspected at morning, noon and night, and bedding at morning and night, when in tick-infested areas. Attached ticks should be removed at once and without crushing them. When attached to the skin a lighted eigarette placed close to the tick will stimulate its voluntary withdrawal.
- (3) That tick bites should be immediately cauterized by:
 - (a) Phenol, followed by alcohol -(b) or by a silver nitrate stick.

For the Surgeon:

d. Fleas:

- (1) On 7 October 1943 one (1) case of endemic typhus fever occurred within a unit of this command stationed at Stoney Field, Charleston, South Carolina. Since typhus fever was endemic in the entire Charleston area, the source of infection may not necessarily have been from this camp site. However, the following control measures were instituted:
 - (a) No food was to be left in any of the hutments.

(b) Company carpenters repaired all screen doors

in order that they fit properly.

- (c) All coal bins, which were present in the floors of each hutment, were cleaned out and sealed permanently.
 - (d) Dirt was banked around the edge of each

hutment as a temporary measure.

(e) The mattresses and bed clothing of all personnel in the hutment in which the case of typhus fever occurred were disinfected.

A project was completed which consisted of the raising of all hutments from 12 to 14 inches off the ground to prevent harboring of rats. The immediate contacts of this disease case were examined and no further evidence of infection was found.

(2) Thirty-four cases of endemic typhus occurred during July and August 1944 among the civilian population in Wilson County, North Carolina. Since troops of this command were stationed adjacent to this area an investigation was made from which it was learned that the State of North Carolina maintains a permanent rat-control program. In view of the number of cases involved, Wilson County ran an intensive rat-control program, using the services of professional exterminators and supplying poison and baits to private individuals.

e. Cockroaches and Bedbugs:

(1) Neither cockroaches nor bedbugs have been a serious problem, control being accomplished by insistance upon excellent sanitation of buildings, messes, etc., and through the use of appropriate insecticides as outlined in current WD instructions.

(2) When fumigation of buildings, occupied by Eastern Defense Command troops, is deemed advisable this headquarters as a safety precaution has directed that certificates be obtained from the appropriate medical officer as to the necessity for fumigation as well as the time it may be safely reoccupied after such fumigation. The fumigation is done by trained personnel and a guard is maintained until the building being fumigated can be safely reoccupied.

f. Control of Rodents:

Within Continental U. S. rodents have presented no particular problem and their control has been a function of service commands where troops have been located on permanent posts, camps or stations. At outposts this phase of sanitation has been no problem primarily because of the application of strict sanitary measures.

l. Experienced Sanitary Corps engineers were made available for assignment to this command by WD AGO Ltr, File AG 210.31 (18 Sept 43) PO-A, Subject: "Assignment of Medical Department, Sanitary Corps Sanitary Engineer Officers," dated 19 October 1943. In order to conserve trained Medical Department officer personnel and in view of the fact that the majority of EDC troops were located on or near service command posts, camps or stations, the following self-explanatory letter was sent to the commanding generals of each of the first four service commands.

721 (Surg)

4 December 1943

Subject: Inspections by Sanitary Engineers.

To : Commanding General, Service Command

- 1. It is understood that Sanitary Corps officers, trained in different phases of sanitary engineering, have been assigned to the medical sections of the various service commands to furnish service as consultants in sanitary engineering problems to commanding officers and medical officers under your jurisdiction. It is further understood that they make routine sanitary inspections regarding water supplies; sewage and garbage disposal plants; mosquito, rodent and insect control; camp site surveys, and upon request, instruct officers and enlisted men in field sanitation.
- 2. The question of assigning Sanitary Corps officers to this headquarters to provide this special feature for Eastern Defense Command troops, has been under consideration, since it is felt that troops housed in temporary quarters, or in the field, would be equally benefited such services. It would appear, however, that since such such officers are now assigned to service commands, a duplication of activities might be avoided and a conservation of personnel effected, if Eastern Defense Command units were included in such inspections by your personnel. Further details could be arranged by the Surgeons, Eastern Defense Command and the Service Command.
- 3. If such action appears practicable and meets your approval, a list of stations under the jurisdiction of this headquarters, within the geographical limits of your command,

will be furnished you to be included in the current itinerary for inspections by sanitary engineers from your headquarters. Provided you concur, it is requested that the reports made by these inspecting officers be submitted to the commanding officers of the units concerned, to be forwarded by indorsement through channels to this headquarters, and that informational copies be sent direct to this headquarters in order that the Surgeon of this command may have prompt information concerning any irregularities that may be noted.

4. Routine medical inspections of Eastern
Defense Command units have been and will continue to
be made by the respective unit and sector surgeons,
the surgeon AAA command and by officers of the Office
of the Surgeon, this command.

For the Commanding General:

/s/ E. Bogaski, /t/ E. BOGASKA, Captain, A.G.D. Asst. Adjutant General

The following reply was received from the First Service Command which is similar to the replies received from the Second, Third and Fourth Service Commands:

SPBSM 333.1

1st Ind.

RNC/mpc

(4 Dec 43)
Headquarters First Service Command, Boston 15, Massachusetts.
10 December 1943.

TO: Commanding General, Eastern Defense Command, Governors Island, New York

- 1. A plan similar to that described in the basic communication is now in effect in the First Service Command embracing various installations of the Eastern Defense Command. Inspections have been made under the authority of paragraph 6 a(5)(b) AR 170-10 and reports in all cases have been made to the commanding officers of the installations. This work has been carried out in close cooperation with the New England Sector.
- 2. To insure coverage of all installations, the First Service Command has been divided into 13 districts, in each of which there is at least one sanitary corps

engineer. This engineer is required to inspect all Army installations within his district, regardless of what class the installation may be. He is stationed at the same place as the post engineer who provides utilities services for the identical district, so as to facilitate communication between the inspector and the engineer.

3. It is desired to cooperate fully with the Eastern Defense Command in such work. It is noted that a list of stations will be provided by Headquarters Eastern Defense Command, and this list will be broken down at this headquarters for transmittal to the post sanitary officers involved. It is also noted that it is desired that reports of inspecting officers be submitted to the commanding officers of units concerned, and that information copies be sent direct to Headquarters Eastern Defense Command. This practice will be put into effect immediately upon receipt of the list of installations.

For the Commanding General:

/s/ Robert N. Clark
/t/ ROBERT N. CLARK
Major, Sanitary Corps
Chief, Sanitary Section,
Medical Branch

- 2. Prior to the above action, problems concerning Sanitary Engineering had been handled by Medical Corps personnel assigned to this command and these services were furnished by service commands by special request in a few instances.
- 3. The arrangement outlined in paragraph 1 above has functioned satisfactorily for 2 years and remains in effect. By early 1945 all Eastern Defense Command troops within the continental confines of the United States were stationed on permanent posts, thus eliminating the problems relating to sanitation at outposts. It is felt that a duplication of activities has been avoided and a definite conservation of personnel and travel has been effected.

CHAPTER IV

EPIDEMIOLOGY AND COMMUNICABLE DISEASE CONTROL

1. Immunization:

- a. Immunization of Eastern Defense Command troops stationed within Continental United States has been routine and in accordance with War Department directives.
- b. Special immunizations are not required routinely and are only given to units alerted for overseas duty and then in accordance with special instructions as contained in warning or movement orders. Individual replacements for overseas duty receive immunizations as directed in their orders and as prescribed in POR.

2. Intestinal Infections:

The incidence of diarrheal diseases has always been and continues to be low within this command, however, an occasional outbreak of diarrhea does occur. Strict sanitary inspections and measures have been enforced throughout the command to the effect that mess personnel are kept currently instructed and alerted to the actual practice and use of the sanitary principles necessary for proper mess management. In this connection see Letter, Headquarters Eastern Defense Command & First Army, File 72C X 721.5, subject: "Common Diarrhea and Disentery Control," dated 12 April 1943 which is reproduced in Section I, under (paragraph 6) subject: "Disposal of Waste."

3. Infections of the Respiratory Tract and Infection Transmitted Discharges from the Respiratory Tract:

a. The influenza epidemic during the early winter of 1943, although not of serious proportion in this command, stimulated the publication of the following directive with the intent of emphasizing preventive measures in the control of Acute Upper Respiratory Diseases.

HEADQUARTERS
EASTERN DEFENSE COMMAND
Governors Island, New York 4, N.Y.

(Surg)

710

18 December 1943.

Subject: Acute Upper Respiratory Diseases.

To: Antiaircraft Artillery Command, Base Commands,
Military District of Washington, Sector, Subsector, Harbor Defense, Brigade and Separate
Unit Commands.

- l. The need for stringent application of preventive measures against acute upper respiratory diseases is emphasized by the present "grippe" epidemic. This epidemic is not the "influenza of 1918," but its potential for creating noneffectives is great. Therefore the following preventive measures are reiterated and recommended for consideration at this time:
- a. Early diagnosis and hospitalization. When hospital facilities are not available for all, the segregation of the mild quarter cases should be practiced. In the presence of a noteworthy increase in the incidence of upper respiratory diseases, a daily inspection of troops by roster should be conducted.
- b. Any practical rearrangement to obtain maximum bed spacing, use of head to foot sleeping, utilization of shelter halves to construct cubicles when indicated (Reference pare 17 a. (1)(b), Chap. 2, FM 8-40), proper airing of bedclothes, frequent routine checks for adequate ventilation, particularly at night.
- c. Daily inspection of food handlers for symptoms of upper respiratory disease, their prompt removal when found infected, and strict compliance with proper sterilization and air drying of mess utensils.
- d. More widespread dissemination of knowledge among the troops as to how these upper respiratory diseases are spread, particularly by unmasked sneezing, coughing, careless spitting, the use of the common drinking cup, and transmission by hand contacts with nasal and mouth discharges. The importance of general sanitation and personal hygiene should be emphasized at this time. Attention is directed to the availability of training film 8-63, T.C. 116, dated 1 November 1943, subject: "Housing and Control of Respiratory Diseases."
- e. Avoidance of excessive fatigue and chilling, and pertinent modification, whenever feasible, of training schedules for recruits during the current epidemic.
- f. Frequent inspections in order to insure the wearing of adequate clothing and footwear and the issue of suitable bedding.
- g. Avoidance of crowding in public gatherings such as theaters during the presence of an epidemic of upper respiratory disease.

- h. Commissioned and noncommissioned officers should be delegated and held responsible for the enforcement of these preventive measures.
- i. Under extreme circumstances the limiting or denying of passes to areas with a high incidence of respiratory infections.
- 2. One of the common weaknesses of preventive medicine is to await actual involvement in an epidemic before strictly enforcing preventive measures. Practically all of the above measures can be quietly and firmly enforced before such involvement, without interfering with any military objective. These measures, properly enforced, can be regarded as a definite bulwark against the possibility of a majority of any command becoming noneffectives at any one time due to acute upper respiratory diseases.

By command of Lieutenant General GRUNERT:

/s/ L. V. Warner /t/ L. V. WARNER Colonel, A.G.D., Adjutant General.

- b. There was a marked reduction in the admission rate for the common respiratory diseases in 1944, the rate being 79 per 1000 which represented a decrease of 85 per 1000 in the annual rate over 1943. First indorsement to War Department letter, AG 710, Subject: "Measures to Prevent Epidemics of Respiratory Diseases," dated 29 January 1944, directed the attention of commanders of all grades to the fact that they are responsible for the enforcement of such preventive measures and that this responsibility may not be delegated.
- c. The admission rate for cerebrospinal fever for 1943 was 0.750 per 1000 per annum, with a death rate of 0.043 per 1000 per annum. They all represented sporadic cases.
- d. Four scattered cases of cerebrospinal fever occurred in this command during 1944 without fatality.

4. Miscellaneous Infections:

a. Following vaccination with yellow fever virus, an epidemic of jaundice occurred among the officers of this headquarters in 1942. This made an ideal group for study as regards the possible etiology and nature of the disease. As a result of this

study, it was believed that the cause of this epidemic was due to Lot No. 368, yellow fever vaccine. Of the officers who received Lot No. 368, y.f.v., 24.7% developed jaundice and 32.4% developed symptoms without clinical jaundice, a total of 57.1%. No officer who received another vaccine lot or who was unvaccinated, developed symptoms of jaundice. The symptoms and signs were those of "catarrhal" jaundice, and the majority of patients developed symptoms from 70 to 80 days following vaccination. Jaundice followed in another 11 days on the average, the incidence of both jaundice and symptoms being highest in the age group 51-60. There were no deaths and recovery was complete in all cases.

- b. In conclusion, it was felt that most likely the human serum used in the vaccine was responsible and that it was contaminated by the virus of infectious hepatitis. A detailed report of this study, dated 18 August 1942, was submitted to The Surgeon General.
- c. During April 1944, one (1) case of Weil's disease occurred in a unit of this command stationed at Brunswick, Georgia. In view of the fact that this camp site was to be declared excess within a very short time, any project for the permanent rat-proofing of buildings was considered too expensive. Temporary rodent control measures were effected while troops remained at that station.
- d. Two cases of undulant fever were reported during 1943; a civilian source of infection was revealed in one case and the source of the other was undetermined.
- e. During 1943 and 1944 technical medical activities were closely coordinated and correlated by the Surgeon, Eastern Defense Command, through liaison with Sector and Base Surgeons, to the respective unit surgeons.

5. Sulfonamide Drugs:

In order to prevent improper use of sulfonamide drugs in field units the following letter was issued:

HEADQUARTERS EASTERN DEFENSE COMMAND OFFICE OF THE SURGEON

441.1 Governors Island, New York 4, N. Y.

27 November 1943

Subject: Use of Sulfonamide Drugs in Field Units.

To : Medical and Dental Officers, All Units, Eastern Defense Command.

- lo In accord with the recommendations contained in Circular Letter No. 17, S.G.O., dated 23 February 1942, it is desired to remind medical officers of this command of the limits to which the use of sulfonamide drugs in field installations are confined. Indiscriminate use of this potentially dangerous drug must be avoided.
- 2. Every medical officer should be thoroughly familiar with the most recent circular letters of The Surgeon General's Office relative to conditions in which sulfonamide drugs are used, and should be guided accordingly. Dehydration will be corrected before, and an adequate intake of fluids assured during the therapeutic administration of all sulfonamides.
- 3. Without adequate laboratory control, the administration of sulfonamide drugs, including topical applications, in excessive dosage or over long periods of time or to individuals with previous history of difficulty in taking the drugs is contraindicated. Similarly, the internal use of sulfonamides in treating minor, self-limiting diseases is not in accord with the policy of this command. When the internal use of a sulfonamide is indicated in dental cases, it will be given under the supervision of a medical officer. When the topical use of a sulfonamide powder is indicated, the powder should either be applied with an insufflator, when available, or lightly dusted over the cavity to avoid excessive caking with foreign body formation or interference with natural drainage.
- 4. Adequate laboratory facilities for the control of the administration of sulfonamides is considered to mean having sufficient equipment for the daily performance of blood counts, blood-level determinations of sulfonamides and microscopic examination of the urine, if

needed. Where adequate laboratory facilities are not available to the medical officer, the administration of sulfonamides, will be limited to the following instances:

(a) When sulfathiazole as a preventive for gonorrhea is expressly authorized by this headquarters.

(b) When sulfadiazine is expressly authorized as a preventive for epidemic (meningococcic) meningitis. (Refer S.G.O. Circular Letter No. 170, 30 September 1943.)

(c) Where the treatment of gonorrhea on a duty status is a policy of the service command in which the unit is located.

(d) When indicated, in the judgment of the attending medical officer, pending transfer of the patient to a hospital.

- 5. Whenever the condition of a patient suffering from any ailment not listed under paragraph 4, subparagraphs a, b, c, is considered severe enough to indicate the internal use of sulfonamide drugs, that patient will be evacuated to the nearest available hospital facility serving the unit.
- 6. Where not specifically covered in directives from The Surgeon General's Office or this headquarters, it is desired that Medical Department officers assigned to EDC installations follow the general policies of the respective service command surgeons for the professional care of the sick and injured. When any cogent reason arises that renders such action unwise for tactical units, it should be brought to the attention of this headquarters without delay.

/s/ S. M. CORBETT /t/ S. M. CORBETT, Colonel, Medical Corps, Surgeon.

CHAPTER V

VENEREAL DISEASE CONTROL

- 1. An intensive analysis of all existing records relative to the incidence of venereal disease and the use of routine chemical prophylaxis was made during 1942. Numerous graphs were prepared as indicators of current venereal disease trends for each subdivision of the Eastern Defense Command. Liaison was established with the Venereal Disease Control Officers of the service commands, the U.S. Public Health Service Districts, U.S. Naval Districts, and of most State Health Departments along the eastern seaboard. Over a score of regimental units within the command were visited specifically concerning venereal disease control. Educational data about the correct and incorrect techniques in using mechanical prophylaxis were distributed. These instructional data were amplified to include individual chemical prophylaxis as well. Carefully controlled studies concerning the use of sulfathiazole as a prophylaxis for gonorrhea were started and are being continued. A study was made among over ten thousand soldiers along the Atlantic seaboard relative to the proportion of enlisted personnel having nonmarital sexual intercourse within a 28 day period, the use or nonuse of each type and combination of prophylaxis, the proportion of time fees were paid and the correlation of these data to marital status and race. Following this, another more extensive survey was prepared to uncover additional facts and, insofar as possible, the motives and reasons for phenomena observed so that a more scientific and effective program of venereal disease control might be formulated. Insofar as available data permitted, further analyses were made concerning the type of enlisted personnel, general and special environmental and other factors related to the venereal disease incidence rates in individual regiments and their subdivisions. Meetings were attended and assistance rendered in connection with the special venereal disease problems existent in the State of Maine. A study of venereal disease problems in the country of Newfoundland was started and certain practical remedial measures were instituted to help control the problem among our armed forces at that base.
- 2. Throughout the year 1943 the intensified program for control of venereal disease aided the command to maintain the slow but appreciable lowering of the general venereal disease rate. During the year 1943 the highest monthly rate attained was 23 per 1000 per annum, and in December 1943 the rate was 15,7 per 1000 per annum. The average rate for 1943 was 19.3 per 1000 per annum. This represents a decrease of 12.6% over the average rate for the previous year.

- 3. New measures placed in operation during 1943 were primarily designed to reach the individual rather than units as a whole. A training memorandum issued by this headquarters 28 September 1943 was forwarded to all units of this command. It provided for the training of at least one enlisted man from each detachment, presson or position, through a course of ten hours of prepared lectures and demonstrations. These trained venereal disease aides are to team and advise all the men of their units individually or in small groups by encouraging discussions and correcting erroneous ideas.
- 4. In addition a directive was forwarded to units make aning a higher rate than average for the command, expressing the desire that all men going on or returning from pass or furlough be interviewed with sex education in mind.
- 5. A study of sulfathiazole as a prophylactic for gonorrhea was completed during 1943. An analysis of over 5000 cases was the basis of the report which proved the effectiveness of this new drug as a prophylactic agent against gonorrhea. The study referred to above was published in The Bulletin of the U.S. Army Medical Department, No. 78, dated July 1944, under the title "Sulfathiazole for the Prevention of Gonorrhea."
- 6. The problem of excessive incidence of the venereal disease in colored troops, long a problem in the armed forces, was given particular attention, and in several instances where the venereal disease rate was high, aggressive measures such as enumerated above were successful in reducing the rate to a satisfactory level.
- 7. The program of poster and literature distribution was maintained at a satisfactory level during the year 1943 as well as the preparation and distribution of prophylactic station lists, sex education film lists, and lists of the sources of educational material for the control of venereal diseases. Frequent visits were made by the venereal disease control officer of this headquarters to units having excessive rates, as well as visits to communities adjacent to military installation of the command. The cooperation of civilian agencies, Federal and State Departments, and the Special Services Section of this headquarters, were most helpful. Liaison with the various service commands, the U. S. Navy, and the Federal Security Agency was maintained.
- 8. At the close of 1944 there existed two major problems in venereal disease control which were also problems of the entire Army and not confined only to the Eastern Defense Command. The first was the rising incidence of new syphilis cases concerning which much attention was given and it was hoped that the particular attention given to all men going on and returning from pass or furlough would help solve the problem. The second problem was the

evolution of the duty status treatment of gonorrhea with sulfathiazole. It was then pointed out that the importance of this mode of
treatment was threefold: (1) the maintenance of trained men on
duty in the field; (2) the practical experience gained by medical
officers who are expected to treat men for gonorrhea on a duty
status under combat conditions in overseas theaters; and (3) in the
freeing of hospital beds and personnel for other medical needs.

- 9. During 1944 much emphasis was placed upon venereal disease control within the Eastern Defense Command. The average admission rate for venereal disease for 1944 was 16.6 per 1000 as compared with a rate of 19.3 per 1000 for 1943. This represents a decrease of approximately 14%.
- 10. The venereal disease control officer was relieved from assignment to this headquarters by WD Special Orders No. 22, dated 26 January 1944, at which time the Personnel, Plans and Training Officer was detailed as Venereal Disease Control Officer for this command in addition to his regular duties.
- 11. In addition to control measures already in effect, the following control measures were instituted and stressed during 1944 and 1945:
- a. Emphasis was placed upon the importance of obtaining complete, accurate and detailed information concerning the sources of venereal disease infection. A directive was issued to all units of this command on 10 June 1944 which required that an information copy of each completed WD AGO Form 8-148 (old MD Form 140) be furnished this office in order that corrections or suggestions might be recommended as necessary. The following detailed directive was issued to all unit surgeons, Eastern Defense Command, on 7 June 1945, and offered a numbered of suggestions that should be considered in order that maximum results would be obtained when interviewing patients for contact information:
 - l. Unit surgeons will be responsible for obtaining complete, accurate and detailed information concerning the sources of venereal disease infection. This information will be legibly recorded within twenty-four (24) hours of diagnosis on the contact history form (WD, AGO Form 8-148; old MD Form 140). The completed form will be distributed according to instructions contained on the reverse side of the form. In addition, it is desired that copies of contact reports accompany the Weekly Statistical Health Report (WD, AGC Form 8-122; old MD Form 86ab) rendered to this office for all "new" cases of venereal diseases recorded thereon.

- 2. Approximately 50% of the contact reports that are received by state and local health department do not contain sufficient information upon which to trace a contact. Interviewing a patient requires diplomacy and interest. Best results are obtained if a medical officer conducts the interview privately in his office. A comment should appear on every line of the contact form, including "Remarks", and separate forms should be filled out for each contact where multiple exposures have curred.
- 3. In interviewing patients for contact information, the following suggestions should be considered:
- a. Stress the confidential nature of the information a soldier gives; impress upon him that his name is never mentioned in connection with a contact; that, as a matter of fact, the interviewer is not even interested in him at all. Do not start out by asking his serial number and unit. Many do not believe in the confidential aspect of the inquiry when this question is asked. Do not fill out this section in his presence. The information is on his Form 52 and can be filled out later.
- b. Stress should be laid on the importance of having the patient report accurately the names and addresses of the contacts so that they may also have the chance of early cure. It is a mistaken idea that giving the name of a woman is not "playing the game". As a matter of fact, not giving the information puts the woman at a disadvantage, since most of them would be extremely anxious to get rid of a disease of which they may have been unaware. Stress the point that they are wronging the woman by not giving her name and address. Quite a few have a sudden return of memory when this is driven home.
- c. Explain that the girl will be contacted so that no one, not even her parents, will have any idea that she is diseased or has been a contact of disease; that she will be advised as to treatment by competent medical practitioners, and assisted if she is financially unable to go to a private practitioner.
- d. Impress upon the soldier that he may have infected others who need attention and assistance just as much as the woman who infected him. It is the Army's desire, in cooperation with civilian health authorities, to cure them all and that his information is his part in the crusade against venereal disease generally.

- 4. Prior to transmission, each contact report should be checked carefully to make certain that the information contained on the report will be of value to the appropriate health department.
- b. Prophylactic station lists were published and kept currently up-to-date.
- c. Emphasis was placed upon the use and availability of individual mechanical and chemical prophylactic items.
- d. Sulfathiazole prophylaxis for gonorrhea was encouraged when rates reach or may be expected to reach 50 per 1000 per annum, in conjunction with a central check-in check-out system as outlined in the following letter:

HEADQUARTERS
EASTERN DEFENSE COMMAND
Governors Island, New York 4, N. Y.

726.1 (Surg)

16 August 1944.

Subject: Sulfathiazole Frophylaxis for Gonorrhea.

To : Commanding Officers, All Units, E. D. C.

1. Letter, file 726.1, Subject: "Sulfathiazole Prophylaxis," Office of the Surgeon, Headquarters Eastern Defense Command and First Army, dated January 16, 1943 and letter same file and subject, Office of the Surgeon, Headquarters Eastern Defense Command, dated 3 September 1943 are hereby rescinded.

- 2. The adoption of sulfathiazole prophylaxis, when properly administered, has been proven to reduce venereal disease rates. However, when used, all other measures for Venereal Disease control should be continued in operation and intensified. Attention is directed to letter this headquarters, file 726.1 (Surg), Subject: "Venereal Disease Control," dated 6 July 1944.
- 3. Organizations of this command in which the gonorrhea rate reaches or may be expected to reach 50 per 1000 per annum are encouraged to institute the use of sulfathiazole by mouth as a method of prophylaxis

against gonorrhea as authorized in S.G.C. Cir. Ltr. No. 146, Subject: "Sulfathiazole by mouth in the prophylaxis of gonorrhea," dated 12 August 1943, as amended by S.G.C. Cir. Ltr. No. 1, 1 January 1944, page 8.

- 4. To increase the effectiveness of administering sulfathiazole prophylaxis, a central check-in check-out system should be established. The following plan is one which past experience has proven to be effective:
- a. Enlisted men, leaving the post on pass obtain their pass from the Charge of Quarters who offers each man sufficient mechanical and chemical prophylactic materials to meet his anticipated needs. The Charge of Quarters keeps a roster of all men leaving the post on pass.
- b. Immediately upon returning to the post, all men report to the Charge of Quarters who instructs them to complete Part I of the Prophylactic Form (See sample below). Part II will be filled in by a dispensary or Prophylactic Station attendant, and returned by the soldier to the Charge of Quarters who forwards all completed "Prophylactic Forms" marked CONFIDENTIAL, to the commanding officer for filing in a locked cabinet. Prophylactic Forms are retained for the three (3) succeeding months and then they may be properly destroyed.

CONFIDENTIAL (when completed)

PROPHYLACTIC FORM

PART I

	DATE
NAME	ASN
	intercourse with anyone but your wife?
Did you use a condon	for every sexual exposure?
Did the condom break	?Did you use chemical prophylaxis?
Station or self-admi	nistered?How long after each exposure?

PART II

(To be filled in by dispensary attendant)

Sulfathiazole prophylaxis (2 grams) given at

(Hour & date)

Calomel cintment prophylaxis given at

(Hour & date)

NOTE: Accuracy in filling out this form is of utmost importance for the welfare of the individual.)

- c. If the soldier admits extra-marital sexual exposure without the use of prophylaxis or with inadequate prophylaxis (administered more than two hours after exposure), the following procedure is instituted:
- (1) The soldier will report to the dispensary or prophylactic station where a trained attendant gives the man two (2) grams of sulfathiazole which is taken by mouth in his presence. (Sulfathiazole should be available already made up in individual packages. Each package should contain four (4) 1/2 gram tablets of sulfathiazole. Directions printed on the package should read: "Gonorrhea Prophylactic Tablets Take four tablets with a full tumbler of water). The trained attendant will also make certain that the soldier thoroughly cleanses himself with soap and water and applies the calomel ointment in the manner now prescribed for station prophylactic treatment as a protection against syphilis.
- (2) Sulfathiazole prophylaxis will not be administered to individuals:
 - (a) Leaving on furlough.
 - (b) Whole duties involve aerial flights.
 - (c) If an approved routine intraurethral chemical prophylaxis was used within two (2) hours.
 - (d) If the soldier has a history or record of sensitization to the drug.

5. This headquarters will be notified (Attention Surgeon) by organizations as to the date on which sulfathiazole prophylaxis is inaugurated and again when terminated.

By command of Lieutenant General GRUNERT:

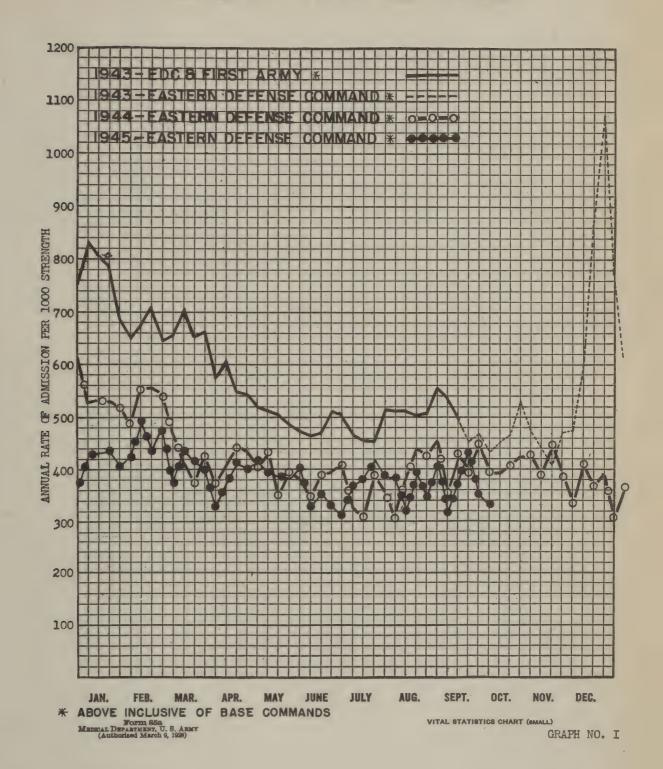
/s/ F. J. Cunningham /t/ F. J. CUNNINGHAM, Colonel, A.G.D., Adjutant General.

DISTRIBUTION:

(Less APO 100 & 860)

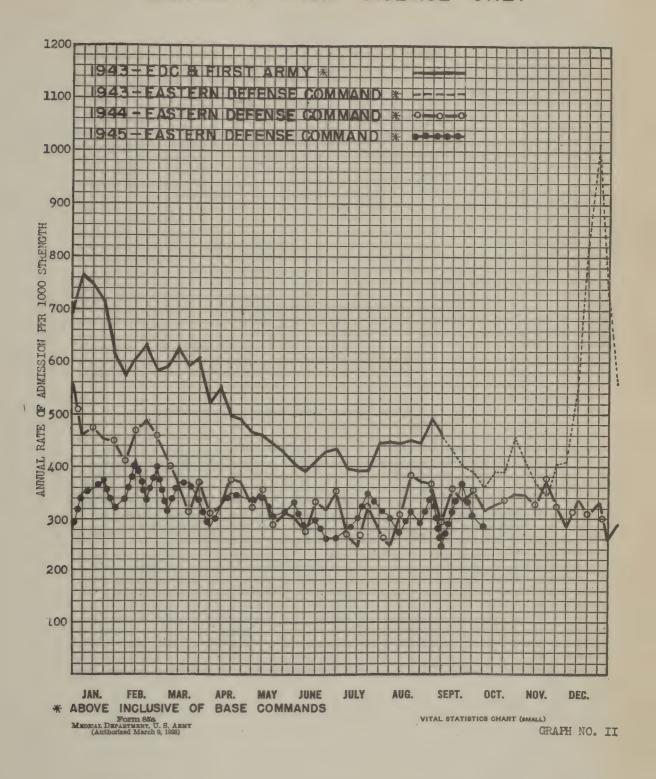
- e. Current regulations, circulars, and other pertinent instructions were published by this headquarters and forwarded to unit commanders as a ready reference and guide for all officers charged with the responsibility for the control of venereal diseases, by Ltr this headquarters, file 726.1 (Surg), Subject: "Venereal Disease Control," dated 6 July 1944.
- f. Particular emphasis was placed upon four phases of control namely:
 - (1) Developing an aggressive educational program.
- (2) To encourage the use of the single tube (individual) chemical prophylaxis.
 - (3) Reporting of contacts by medical officers.
- (4) Cooperation and coordination with civilian health agencies toward the suppression of prostitution and allied conditions.
- 12. In the Sanitary Report under the heading "Subjects Not Covered Under Other Headings," unit surgeons of this command are required to make a statement of pertinent information pertaining to venereal disease control activities and the venereal disease rate per 1000 per annum for the month based upon either a four or fiveweek period. When venereal disease rates exceed 25 per 1000 per annum, unit commanders are required to state causes of the excessive rates and action taken in order to reduce them.

MORBIDITY FROM ALL CAUSES.



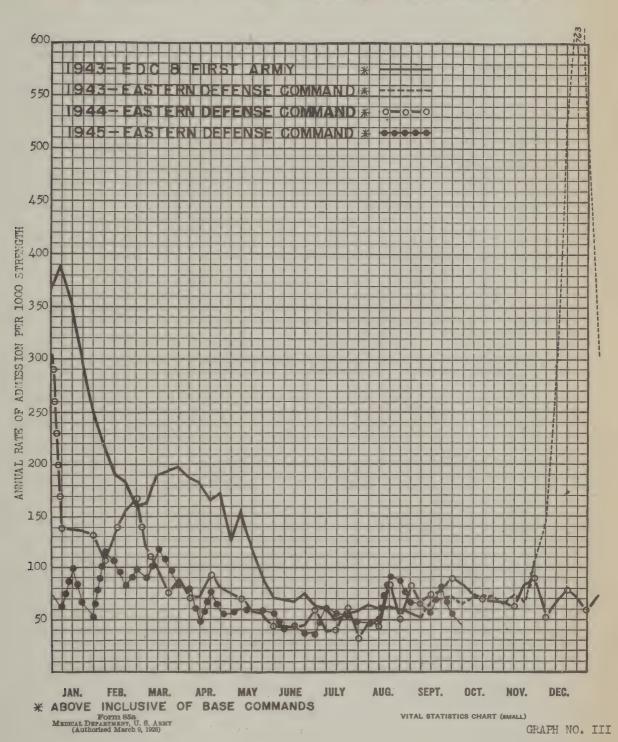


MORBIDITY FROM DISEASE ONLY



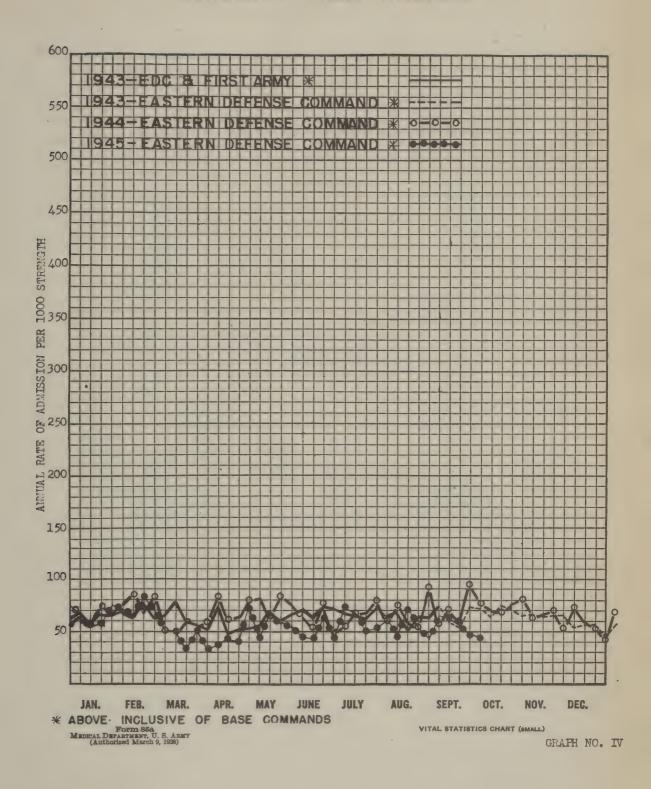


MORBIDITY FROM COLDS, INFLUENZA, ETC.



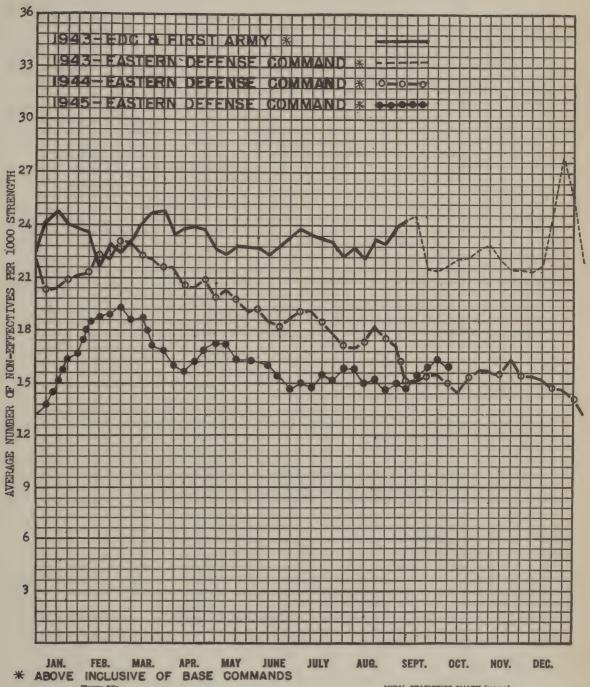


MORBIDITY FROM INJURIES





NON - EFFECTIVE RATE



FORM 856.
MEDICAL DEPARTMENT, U. S. ARMY
(Anthorized March 9, 1928)

VITAL STATISTICS CHART (SMALL)

GRAPH NO. V



The state of the s	The state of the s	BASTERN DEFENSE COMMENCE	Governors Island, New York Lynn Covernors Island, New York Lynn Covernors	on the Mackly Statistical Health Renorts. Form No. Skah M. and Sunniements Thereto for week ending 20 Dec
CLASSIFICATION CANCELLED	MONTH: WE CITE NO. 4. 5 June 1946	CAPTAIN V B TAYLOR PC	Historical Division	Commons of Moobly C+otistical Hoslith Re
		319.1	(Surg)	

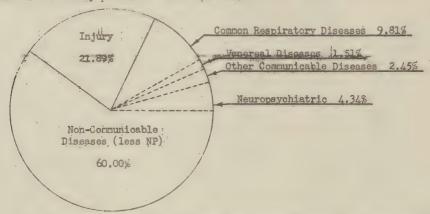
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	130 DISCORDS OUTLY	(47) (77) (77)	es Venereal Neuropsy-	Diseases chiatric Diseases	Days Rate Days Rate Days Rate Days Rate	27 4.8 34 0.4 · 1 1.1 144, 15.7	3.0	1 4.7 3, 0.7 3 0.6 70 15.4	c 3.1 x 0.0 x 0.1 x 10.8	x 2.8 x 0.3 x 0.5 x 5.9	x 2.9 x 0.0 x 0.8 x 12.2	x 2.1 x 0.1 x 1.0 x 4.2	x 0.9 x 0.0 x 0.0 x 2.8	3.0 x 0.2 24 0.6 349 9.4	56.7	0.5 0.6 13.0	6.04
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and Quarter	(2)	(5)	Total	(2) (3) & (4)	No. Rate	5 281	39 227	38 436	609 x	x 360	т 987	x 218	x 315	x 363	514	4774	630
Weekly Hospital	NTUO SE	(4)	Neuropsy	chiatric	No. Rate	0 0	2 11	0 0	0 ×	x 36	x 41	0 ×	0 ×	× 8	194	10	563
Weekl	Diseases	(3)	-	chi	No. Rate	2 112	29 169	32 367	x 522	x 216	x 539	x 158	x 225	201 282	4	337	50
		(2)	Injuries	Only	No. Frate	3 169	8 47	69 9	x 87	x 108	x 104	09 x	x 90	. 52 73	53	19	. 67
		(E)	'organization			EDC Troops	Northeastern Sector	Southeastern	Newfoundland Base Command	Bermuda Base Command	Greenland Base Command	Iceland Base Command	4 Personnel at 6 #106	Total E.D.C. Current Week	Total U.S.Army* Current Week	Total E.D.C. Year to Date	Total U.S.Army* Year to Date

Sunmary for week ending 29 Dec 14 (Contd):

1. The number of absent sick from all causes averaged 1.32% of the strength of the command daily. This is a decrease of 0.09% compared with the rate for the previous week.

2. The distribution of all illness in the Eastern Defense Command as of the close of the weekly period is illustrated below:



3. The admission rate for the common respiratory diseases has increased 15 per thousand per annum compared with the rate for the previous week.

4. The EDC admission rate for all cases of venereal diseases shows a decrease of 6.9 per thousand per annum. The EDC venereal disease rate for "new" cases was 8.4 per thousand per annum for the current week, which is a decrease of 5.5 per thousand per annum compared with the rate for the previous week. No excessive venereal disease rates for "new" cases were reported for the five-week period ending 29 Dec 44.

5. The EDC admission rate for injuries was 73 per thousand per annum for the current week, which is an increase of 31 per thousand per annum compared with the rate for the previous week. For the five-week period ending 29 Dec 44, excessive injury rates were reported for Southeastern Sector, Newfoundland Base Command and Greenland Base Command.

6. Venereal Disease: The 1944 EDC venereal disease rate for "new" cases was 16.6 per thousand, representing a decrease of approximately 14% from the 1943 rate of 19.3 per thousand. The decrease is accounted for by the average drop of 19% in the 1944 rates at Base Commands compared with rates for the previous year. Continental units registered an increase of 1.5% in 1944 rates over those of 1943.

7. One (1) death was reported during the week, as follows: Pneumonia, primary (not atypical) - 1 (Newfoundland Base Command). Report of investigation of the one (1) injury death reported during the week ending 3 Nov 44 (Newfoundland Base Command) has not yet been completed inasmuch as the body has not been identified due to decomposition.

8. Average admission rates (all causes), average non-effective rates (all causes), and average venereal disease admission rates (excluding "old" cases) for the fifty-two weeks' period (seventeen weeks' period for IBC and APO #100 & #406, ten weeks' period for GBC) ending 29 pec 44 reveal the following among commands under the jurisdiction of this headquarters:

The same of the sa	do was need and	A STATE OF THE PARTY OF THE PAR			
ADMISSION RATES		NON-EFFECTIVE	RATES.	V.D. ADMISSION	R.TES
(ALL CAUSES)		(ALL CAUSES) <u>s</u> be .	(EXCL "OLD" CA	SES)
ICELAND B C 282		APO #100 & #406	11.0	GREENLAND B C	0.0
BERMUDA B C 348		ICELAND B C	11.7	ICELAND B C	9.8
AVERAGE EDC 414		BERMUDA B G	12.0	BERMUDA B C	10.6
NORTHEASTERN 415		GREENLAND B C	14.7	AVERAGE EDC	16.6
APO #100 & #406 417		NFLD BASE C	16.6	NFLD BASE C	17.3
SOUTHEASTERN 427.		AVERAGE EDC	18.2	NORTHEASTERN	17.9
EDC TROOPS 486		NORTHEASTERN	19.4	SOUTHEASTERN	18.5
GREENLAND B C .504		SOUTHEASTERN	20.9	EDC TROOPS	18.9
NFLD BASE C 527		EDC TROOPS	30.1	APO #100 & #406	34.0
CONTINENTAL		CONTINENTAL		CONTINENTAL	
U.S. ARMY 630		U.S. ARMY	40.9	U.S. ARMY	34.
(same period)		(same period)	1 1 2 2 2	(same period)	

BY COMMAND OF LIEUTENANT GENERAL GRUNERT:

F. J. CUNNINGHAM, Colonel, A.G.D., Adjutant General.

DISTRIBUTION:

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CLASSIFICATION CANCELLED

WD Curc. No. 4, 5 June 1946 ATOTA ANTEN

APR 7 1948 EASTERN DEFENSE COMMAND CAPTAIN V. B. TAYLOR, PEDVERNOR'S ISLAND, New York 4, N.Y.

10 Oct. 45

ending 28 September 1945,

Thereto for week

Supplements

and

Reports

Wetchel Statisterical Health

Jo Kire

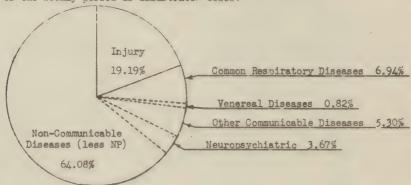
319.1 (Surg)

All Other Per 100 Rates) (77) Average Daily Non-offetives F Men Fer Day (Man Days Lost & Diseases Only Neuropsy-Venereal Injuries (11) S. Groups mnuuy, Discase "New" Per 1000 Diarrheal Cortain Per on Rates Statistics Quarters Admissions & Neuropsy | All Causes | Common | Total | Respiratory | Collister | Perspiratory | Common | Perspiratory | Common | Perspiratory | Common | Perspiratory | Common | Co 333 (5) and Weekly Hospital (†) No. Diseases Neuropsy-Less Injuries (5) HD Delaware HD Chesapeake Bay Sep Current Week Mancous Units Long Island Sourid SouthernlandFrorbier BCO Cond Organization Portland Portsmouth New Bedford Bermuda B C @ 3) IC Yr to 21 Galveston HD Long Island HD Key West celand B C reenland SA*Yr to (7) NEW

O Includes ATC personnel. # Includes Infl uenza. ** Non-effective rate includes evacuees from overseas. NOTES: See reverse side, Continental United States Army only. * Average rate for U.S. Army (1929-38).

Summary for week endir 28 Sep Z5 (Contd):

- 1. The number of absent sick from all causes averaged 1.59% of the strength of the command daily. This is a decrease of 0.04% compared with the rate for the previous week.
- 2. The distribution of all illness in the Eastern Defense Command as of the close of the weekly period is illustrated below:



- 3. The admission rate for the common respiratory diseases remains low and relatively stable.
- 4. The admission rate for all cases of venereal diseases shows a decrease of 5.6 per thousand per annum. The PDC venereal disease rate for "new" cases was 17.0 per thousand per annum for the current week, which is a decrease of 2.3 per thousand per annum compared with the rate for the previous week. Excessive venereal disease rates for the four-week period ending 28 Sep 45 were reported for the Harbor Defenses of Portland, Portsmouth, New Bedford, Long Island Sound, New York, Chesapeake Bay and the Southern Land Frontier. (The underscored commands have reported excessive venereal disease rates for two consecutive monthly periods; HD of Portsmouth has reported excessive VD rates for three consecutive monthly periods).
- 5. The EDC admission rate for injuries was 44 per thousand per annum for the current week, which is a decrease of 4 per thousand per annum compared with the rate for the previous week. The EDC admission rate for injuries for the four-week period ending 28 Sep 1945 was 53 per thousand per annum, which exceeds the injury rate for the total continental U.S. Army for the same period.
 - 6. No deaths were reported during the week among FDC personnel.

7. Average admission rates (all causes), average admission rates (injuries only), average venereal disease admission rates (excluding "old" cases), and average non-effective rates (all causes) for the tventy-two week period ending 28 Sep 45 reveal the following among commands under the jurisdiction of this headquarters:

the roser and retrostring	comorage commercial carci	or one larrage oron	OT OTTER TRACESSORY OF P.
ADMISSION RATES	ADM RATES	V. (ERCL WOLD)	NON-EFF RATES
HD KEY WEST 90	KEY WEST 19	KEY VEST 0.0	KEY WEST 4.2
ICELAND B C 276	NARR. BAY 24	NFLD BC 5.3	NFLD BC 9.0
HD PENSACOLA 308	MISC. UNITS 30	GREENL'D BC 5.4	ICELAND BC 10.8
HD NARR. BAY 334	PENSACOLA 32	ICEIAND BC 7.3	PORTLAND 12.5
HD NEW YORK 352	CHESA BAY 42	CHARLESTON 13.2	BERMUDA BC 13.3
MISC. UNITS 356	NEW YORK 43	[AVG EDC 14.1]	GREENL'D BC 13.5
HD PORTLAND 360	NEW BEDFORD 44	BER MUDA BC 14.8	CHARLESTON 14.9
NFLD BASE COMD 361	GALVESTON 45	MISC. UNITS 14.8	AVG EDC 15.6
AVERAGE EDG 369	BOSTON 45	PORTLAND 16.6	PENSACOLA 17.3
HD CHESA BAY 398	ICELAND BC 47	DELAWARE 16.8	MISC. UNITS 17.8
HD NEW BEDFORD 401 BERMUDA BC 402	DELATARE 50	NEW YORK 20.7	SOUTH'N L F 18.2
	L I SOUND 52	BOSTON 21.4	CHESA BAY 21.3
	SOUTH'N L F 52 CHARLESTON 53	L I SOUND 21.4	NEW BEDFORD 22.0
GREENLAND B C 422 HD GALVESTON 444	CHARLESTON 53 PORTSMOUTH 55	NEW BEDFORD 21.9 PENSACOLA 22.7	GALVESTON 22.1 PORTSMOUTH 22.4
HD GALVESTON 444 SOUTHERN LAND F 472	AVG EDC 55	CHESA BAY 24.8	NARR. BAY 23.3
HD L I SOUND 496	PORTLAND 57	GALVESTON 29.9	
HD PORTSMOUTH 501	BERMUDA BC 60	NARR. BAY 30.4	
HD CHARLESTON 576	NFLD BC 67	SOUTH'N L F 37.5	BOSTON 26.9
HD DELAWARE 584	GREENL'D BC 107	PORTSMOUTH 44.6	DELAWARE 28.6
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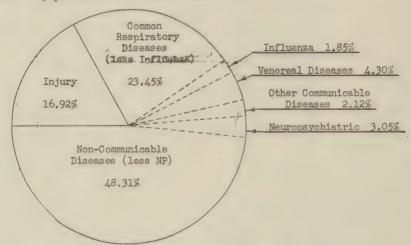
MD and Supplements Thereto, for week ending 31 December 1942 HEADQUARTERS
EASTERN DEFENSE COMMAND
OFFICE OF THE SURGEON
Governors Island, New York 4, N.Y. 36ab A MOR Form No.

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Summary for week ending 31 Dec 43 (Contd)

The number of absent sick from all causes averaged 2.20% of the strength of the command daily. This is a decrease of 0.36% compared with the rate for the previous week.

The distribution of all illness in the Eastern Defense Command as of the close of the weekly period is illustrated below:



The admission rate for the common respiratory diseases inclusive of influenza shows a continued decrease of 195 per thousand per annum compared with the rate of the previous week. This decline represents 351 less cases of upper respiratory diseases and influenza in comparison with the number of such cases reported for the previous week.

The average admission rate for the pneumonias in EDC for the month of December 1943 was 3.90 per thousand per annum compared with a similar rate of 12.30 for December 1942. The average admission rate for the pneumonias for December 1943 in the total continental U.S. Army was 19.0 per thousand per annum. It is interesting to note in a comparison of these three rates that an important factor in the low rate for the pneumonias in EDC may well be the policy of this command to intensify efforts for the early diagnosis and hospitalization of upper respiratory diseases inclusive of influenza. In this connection it should be noted that the average admission rate for upper respiratory diseases and influenza in EDC for the month of December 1942 was 476.6 per thousand per annum compared with a similar rate of only 253.4 for December 1942. Thus, despite the fact that the admission rate for diseases not uncommonly precursors of certain pneumonias was approximately doubled, the admission rate for pneumonias decreased approximately 70%.

The admission rate for venereal diseases shows an increase of 0.9 per thousand per annum. The average EDC venereal rate for the current week is 8.2 per thousand per annum lower than the average for the total continental U.S. Army for the same period. The AAA Command reports the only excessive venereal disease rate this week.

EDC Troops report excessive daily non-effective rates due to both injury and disease.

The following communicable diseases were reported in addition to those commented upon above: Pneumonia, primary -4; Pneumonia, primary atypical -1; Pneumonia, secondary -1; Vincent's Angina -2, Fourteen (14) deaths were reported during the week, as follows: Automobile accident -2; Drowning, accidental -1; Aircraft accident -10; Poptic ulcer -1.

Average admission rates (all causes), average non-effective rates (all causes), and average venereal disease admission rates (excluding "old" cases) for the year 1943 reveal the following among commands under the jurisdiction of this ho:

	0			
ADMISSION RATES (ALL CAUSES)	NON-EFFECTIVE (ALL CAUSE		V.D. ADMISSION (EXCL "OLD" C	RATES ASES)
BERMUDA B C 309	BERMUDA B C	13.0	NEW ENGLAND	11.8
AAA COMMAND 378	NEW ENGLAND	19.0	AAA COMMAND	14.4
SOUTHERN 537	AAA COMMAND	19.0	BERMUDA B C	15.7
NEW ENGLAND 550	N Y-PHILA	21.5	SOUTHERN	19.2
CHESA BAY 587	NFLD BASE C	23.0	NFLD BASE C	19.8
N Y-PHIEA 609	SOUTHERN	23.1	N Y-PHILA	21.0
NFLD BASE 0 748	EDC TROOPS	25.3	CHESA BAY	21.2
EDC TROOPS 826	CHESA BAY	29.9	EDC. TROOPS	21.3
AVERAGE EDC 575	AVERAGE EDC	23.1	AVERAGE EDC	19.3

For the Surgeon:

ANNEX TO HISTORY OF PREVENTIVE MEDICINE IN WORLD WAR II

- l. a. The data presented on the attached graphs is taken from a summary of the Statistical Health Reports, WD AGO Form 8-122, and supplements thereto rendered weekly to this office by every tactical continental unit (separate dispensary) assigned to this command. Data from the EDC base commands included on these graphs is taken from a summary of the consolidated Statistical Health Reports (no supplements required from EDC base commands).
- b. Morbidity rates and noneffective rates are not recorded on the graphs for the years 1941 and 1942 due to the fact that this office did not have complete information on the continental personnel of this command hospitalized in Service Command installations until the adoption of the supplemental report on 30 October 1942. The supplemental report accounts for Army hospital days lost, Army hospital diagnoses of certain communicable diseases, and Army hospital deaths which are not accounted for on the regular Statistical Health Reports rendered by EDC continental units.
- c. Graph No. I represents a comparison of the annual morbidity rates of admission per 1000 strength for all causes for the years 1943, 1944, and 1945 (through 28 Sep 45). The highest rate experienced for any given weekly period during the years indicated was reported during the week ending 17 December 1943. The marked increase in the rate was due to an excessive number of admissions for the common respiratory diseases, as noted on Graph No. III. A total number of 1371 cases of common respiratory diseases, which included 156 cases of influenza, was reported. Reports in general from the field to this headquarters indicated an alert awareness by unit surgeons and unit commanders of the importance of this outbreak and that preventive measures were being enforced.
- d. Graphs Nos. II, III and IV likewise represent a comparison of the annual morbidity rates of admission per 1000 strength for diseases only, common respiratory diseases, and injuries for the years 1943, 1944, and 1945 (through 28 Sep 45).
- e. Special reports of injuries to military personnel are required from all base commands, EDC, whenever the average monthly morbidity rate (based upon either a four or five week period) exceeds 67 per 1000 per annum. Commanders are required to explain briefly the types of accidents and corrective action taken on all unsafe conditions or unsafe acts noted in the report.
- f. Two deaths by electrical shock occurred in a base command under jurisdiction of this headquarters during May 1945. This type of accident is considered to be in the preventable and avoidable

category. A command directive was issued to the effect that all personnel who come in contact with electrical apparatus be constantly instructed and trained in protecting themselves and that adequate safety regulations be rigidly enforced through frequent inspections by appropriate officers and noncommissioned officers.

- g. Graph No. V shows a comparison of the average number of noneffectives per 1000 strength for the years indicated.
- 2. The attached summaries are included to facilitate a comparison of the average admission rates for all causes, venereal diseases (excluding "old" cases), and average noneffective rates within the component elements of this command for 1943, 1944, and 1945 (through 28 Sep 45), as noted on the reverse side of the reports.

PART II

HISTORY OF PREVENTIVE MEDICINE IN WORLD WAR II EASTERN DEFENSE COMMAND BASES

Bermuda Base Command
Greenland Base Command
Iceland Base Command
Newfoundland Base Command



HISTORY OF PREVENTIVE MEDICINE IN WORLD WAR II

BERMUDA BASE COMMAND



HEADQUARTERS EASTERN DEFENSE COMMAND Governors Island, New York 4, N.Y.

314.7 (Surg) 28 July 1945

Subject: History of Preventive Medicine in World War II.

To : Commanding General, Bermuda Base Command, A.P.O. 856, c/o PM, New York, N.Y., (ATTN: Surgeon).

- 1. It is desired that a history of preventive medicine activities for Bermuda Base Command be prepared from the inception of the command through June 1945 and that the original and one (1) copy of this report be forwarded to this headquarters, attention Surgeon, not later than 1 September 1945.
- 2. The following form will be used as an outline in the preparation of the history:

History of Preventive Medicine in the Bermuda Base Command

I Introductory Remarks:

II Sanitation:

- 1. Clothing
- 2. Housing
- 3. Food & Nutrition
- 4. Personal Hygiene
- 5. Water
- 6. Disposal of Waste
- 7. Control of Insects
 - a. Flies
 - b. Mosquitoes
 - c. Ticks
 - d. Fleas
 - e. Cockroaches & Bedbugs
 - f. Other insects
- 3. Control of Rodents

III Sanitary Engineering:

IV Epidemiology:

- 1. Immunization
- 2. Intestinal Infections
- 3. Infections of the Respiratory Tract and Infections Transmitted by Discharges from the Respiratory Tract
 - 4. Miscellaneous Infections
 - 5. Nutritional or Environmental Diseases

V Venereal Disease Control:

- 3. Additional sections may be added, if indicated, to include tropical disease control, medical laboratories, occupational health, civil public health, Health Department activities or coordination, medical intelligence, nutrition and health education.
- 4. Extracts of instructions from The Surgeon General's Office basic letter to this headquarters, which may be of assistance in preparing the history are as follows:
- a. As the Historical Division of The Surgeon General's Office frequently emphasizes, proper documentation is of utmost importance in the preparation of a medical history. It is earnestly desired that not only will documentation be exhaustive but that supplementary material referable to preventive medicine in the field will be transmitted with the manuscript for preservation as future reference and teaching material.
- b. Such a report should contain an account of the problems of preventive medicine that have been met, the difficulties that have been overcome, the expedients employed, the successes achieved and the failures that occurred and that should be avoided in the future.
- 5. It is further desired that material pertaining to preventive medicine activities, which would be of value in maintaining a current history of preventive medicine for your base, be forwarded to this headquarters, in duplicate, every six months as of 30 December and 30 June.

BY COMMAND OF LIEUTENANT GENERAL GRUNERT:

/s/ W. F. Schubert /t/ W. F. SCHUBERT, Major, A.G.D., Asst. Adjutant General. Subject: History of Preventive Medicine in World War II.

BBC 314.7/1

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HEADQUARTERS, BERMUDA BASE COMMAND, U. S. ARMY, APO 856, c/o Postmaster, New York, New York, 30 August 1945.

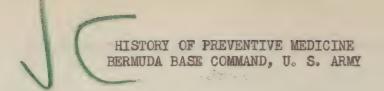
TO: Commanding General, Eastern Defense Command, Governors Island, New York 4, New York.

In compliance with basic communication there is inclosed a History of Preventive Medicine in World War II, for this command.

FOR THE COMMANDING GENERAL:

/s/ G. W. Evans /t/ G. W. EVANS, Major, Field Artillery, Adjutant.

1 Incl.
History (dup)



I Introductory Remarks:

The Bermuda Base Command is located in the Bermuda Islands, a group of small islands situated in the Atlantic Ocean at 32° 15" north latitude and 64° 51" west longitude. The land area consists of about twenty square miles. The Islands are described as coral deposit on a series of mountain peaks of possible volcanic origin. The main Island has been compared in formation to a fishhook lying in a northeast southwest direction, with the open curve of the hook toward the north. The Islands are 1,000 nautical miles from Miami, Florida, and 653 nautical miles from New York. They lie directly east of the North Carolina coast. The first United States Army personnel to be stationed in the Islands arrived on 20 April 1941.

II Sanitation:

- Clothing: The climate of Bermuda is oceanic.

 Definite seasons occur, however extremes are not encountered. It has been the practice here to wear 0.D. clothing from 1 November to about 1 April and khaki the remainder of the year. Clothing has always been adequate and no special type required. During the summers of 1942 and 1943 the wearing of khaki shorts and sport type khaki shirts was authorized for troops during training periods.
- 2. Housing: The Bermuda Base Command was established 18 April 1941 and the troops arrived in Bermuda 20 April 1941 and occupied the Castle Harbour Hotel building, Hamilton Parish. The hotel was used for housing, messing and hospitalizing the troops in addition to being the administrative headquarters.

As outpost and gun positions were established troops for these points were housed in either tents or temporary barracks.

On April 1st, 1943, the Bermuda Base Command was moved from the Castle Harbour Hotel to its permanent location at Fort Bell, and at the same time the 221st Station Hospital was established in the permanent hospital building at Fort Bell.

3. Food and Nutrition: This has been adequate except for a period during the summer of 1942 when due to enemy submarine activities balanced diets were difficult to maintain. Fresh milk was not available until the spring of 1945 when shipments were begun from the United States by plane.

- 4. Personal Hygiene: This has been excellent except during the periods of water shortages and even then it has been adequate because of the fact that these shortages usually occurred in the summer and adequate bathing facilities at beaches were available.
- 5. <u>Water:</u> The water supply of this base is from three sources:
 - a. Rain water impounded from roofs of buildings and catchments at Fort Bell.
 - b. Water from three sea water evaporators.
 - c. Water impounded by catchment at the Castle Harbour Hotel area and brought to the base by water barge.

Approximately 13,500,000 gallons of rain water per year are collected on catchments having a total area of 648,700 square feet. Approximately 22,000,000 gallons of drinking water are prepared by the three sea water evaporators each year. Also approximately another 8,500,000 gallons per year is brought in by water barges from catchment and reservoirs at the Castle Harbour Hotel, which has a storage capacity of 5,000,000 gallons. Water in this reservoir in excess of 1,750,000 gallons is available for use on the base.

- 6. <u>Disposal of Waste</u>: Waste disposal is from a central point at the Fort Bell incinerator. Edible garbage is made available to local farmers while nonedible garbage and other wastes are incinerated. At units not located on the base the same handling is in effect in general, but incineration is by the unit.
- 7. Control of Insects: The only insect problem at this base has been the mosquito. Repeated surveys and mosquito trappings conducted at this base by the U.S. Army, Navy, and local health authorities have demonstrated the following:
 - (1) Anopheline Mosquitoes are not present in Bermuda and Endemic Malaria does not exist.
 - (2) Aedes Aegypti is present. No yellow fever has been reported in a number of years, but there was an epidemic of dengue fever during 1941, with 1401 cases reported among the civilian population and 3 cases among U. S. Army personnel. Measures to eradicate this species have been enforced since that time.
 - (3) Pest mosquitoes are prevalent.
 - (4) The breeding season extends from early April until late November.

- (5) There are no streams in Bermuda. The character of the soil and underlying rock is such that water does not collect in any great quantities on the surface. Swampy areas in general have underground connections with the ocean rising and falling with the tide.
- (6) Type of mosquitoes trapped:
 - a. Aedes Argenteus (Stegomyia)
 - b. Culex Fatigans
 - c. Aedes Sollicitans
 - d. Aedes Taeniorhynchus

In May 1942 an inspection system was instituted, operating under the control of the Bermuda Medical and Health Department, for the locating of breeding places of mosquitoes. Supervisors and inspectors for the program were supplied by the United States Army, United States Navy, British and Bermuda Military Forces, and the Bermuda Medical and Health Department. In addition a well-planned publicity program was instituted and a marsh drainage program begun under a trained sanitary engineer imported by the local government. The control program to date has proven highly satisfactory. During the present campaign the United States Army was able to reduce the personnel assigned to such duties from 23 enlisted men as assigned in 1942 to two enlisted men, the local health authorities taking over more of the areas previously policed by our men.

8. Rodent Control: Although the Bermuda Islands have been noted for their excessive rat population through the years, rats have not been a problem at Fort Bell because of the rat-proofing of the warehouses and the sanitary control measures throughout the area. There are two types of rats prevalent on the Islands, Rattus norbegicus and Rattus Rattus. However, during the past three years the local programs for the control of these rodents have been considerably accelerated. This has been due to stimulation of local interest as a result of their observation of successful measures of control exercised by the United States Army. These measures are in the main limited to ratproofing. Local measures have included the free distribution of phosphide baits, phosphorus poison, rat traps and the operation of cyanide pumps.

III Sanitary Engineering:

1. <u>Sewage Disposal</u>: The sewage system of the Castle Harbour Hotel building is a series of Imhoff Tanks located near the building. It functioned satisfactorily with only a slight odor, no flies and clear effluvium which emptied into Castle

Harbour. Combustible refuse and garbage were burned in the hotel incinerator.

Sewage disposal at Fort Bell is by flush system using sea water and by outfall sewer and pumping station to sea 150 feet from the eastern end of the Islands. The outfall has been the cause of considerable annoyance as it is not located at sufficient distance from several excellent bathing beaches. There is at present under construction a sludge digestive system sewage treatment plant which is expected to be in operation within approximately one month and will eliminate this difficulty. In general troops located at points other than Fort Bell are using pit latrines which are maintained in excellent condition.

2. <u>Water System</u>: There are ten reservoirs and twenty-four wooden stave tanks which have a combined storage capacity of 5,026,600 gallons on the base. Water is pumped into the main water mains from seven pumping stations from these reservoirs. The pumping stations are equipped with electrically operated hypochlorinators, the hypochlorite solution being injected into the system under pressure.

The pumping station to operate for any one day is decided by the Post Engineer on the amount of water available to the pumps. The main pumping station for the day is designated as the primary station, a second set of pumps are designated as secondary pumps for the day and are so set as to come into operation automatically if line pressure falls.

Hypochlorite sclution is introduced at the pumping point in the system and this point may be in very close approximation to using agencies, making it almost impossible to maintain a constant chlorine residual of C.4 ppm. In addition secondary pumping stations may come into the system at any time the pressure falls introducing additionally chlorinated water. Water samples collected from various points on the post revealed chlorine residuals varying from as much as 2.5 ppm to none. The present system of chlorination makes this water potable bacteriologically, but the uneven chlorine residuals with highs of as much as 2.5 ppm which makes the water objectionable from a taste standpoint and the complete absence of chlorine at other areas raises a question as to the potential danger of the water supply.

After a careful study of the present system by the Post Engineer and sanitary engineers of the North Atlantic Division of the Division of Engineers a recirculatory system has been inaugurated which has lowered chlorine residuals at the most objectionable points by increasing contact time of the chlorine with the water. Further improvements are planned which should correct the situation entirely.

IV Epidemiology:

- 1. Immunization: At this base tetanus toxoid, triple typhoid and smallpox vaccinations are all that have been required. Constant check has been maintained and at all times immunization has been complete.
- 2. Intestinal Infections: During June 1944 an epidemic of diarrhea occurred in a unit of this command station at an outpost on the Islands and operating their own mess for a group of 99 men. In the six days during which new cases were reported there were twenty-eight cases of gastrointestinal disease in the unit, with the peak being reached on the fourth day when eight cases were reported. The outstanding symptoms were loss of appetite, weakness, diarrhea and nausea. A few vomited and had temperatures above normal, but none were seriously ill and recovery in the entire group was rapid. All could be considered cured in from 48 to 96 hours after their onset.

A careful study of the menus and checking with all patients revealed that only one meal in the four day period pricr to the onset of symptoms was common to the entire group, and this meal contained only one food which was common to the entire group of patients. This food was hamburger patties. In this outbreak the reporting of the cases was too late to secure any of the suspected food for bacterial examination. Examination of water supplies revealed nothing which would suggest that it had been a causative factor. Food handlers in the kitchen were examined but again nothing pointed to a causative factor. Laboratory examinations of all patients stools failed to find any organisms. The epidemic-logical investigation tended to incriminate ground meat served as the causative agent in this outbreak of enteritis but laboratory investigation failed to incriminate any specific organism.

During April 1945 there was an outbreak of diarrhea among the personnel of the Station Hospital as well as one patient at the hospital. In all 33 persons showed definite symptoms, 5 of whom required hospitalization. An epidemiological investigation was conducted and menu charts for the period involved were prepared and every person at the hospital was interviewed and food eaten during the period recorded. After this careful check it was found that on no one day did every person infected eat at the hospital and further that three persons infected ate no meals whatsoever at the hospital during the period. Stool cultures were collected on the five cases hospitalized and of thirteen stocls examind eight proved positive for Pseudomonas pyccyanea. Repeat cultures one week after the disappearance of symptoms were negative in all cases. A detailed investigation of the water supply of the post at the time of the outbreak revealed that a sample of water collected from one of the catchments showed presence of Pseudomonas

pyccyanea on culture. The unusual circumstance of finding the Pseudomonas pyccyanea in one of the sources of raw water and in excessive numbers in the stools of four of the five cases hospitalized could not be correlated, however, nor was the presence of Pseudomonas pyccyanea demonstrated again in any of the raw water supplies of the base.

- 3. <u>Infection of the Respiratory Tract and Infections</u>
 Transmitted by <u>Discharges from the Respiratory Tract</u>: Respiratory infections have been no problem at this command. Over the past six months rates have reached a point as low as 36 per thousand per annum and a high of only 96 per thousand per annum, which was for the month of February, or the period when respiratory infections can be expected to reach their highest peak.
- 4. <u>Miscellaneous Infections</u>: During December 1941 there was a severe epidemic of Dengue Fever among the civilian population of the Islands, with three cases developing among the American military personnel. All three cases recovered spontaneously with fever for two cases lasting four days and in one case thirteen days.
- 5. <u>Nutritional and Environmental Diseases</u>: There has been no problem whatsoever with nutritional cr environmental diseases.

V <u>Venereal Disease Control</u>:

A comparison of the number and types of venereal diseases in this command during the years of 1943-44 is shown below:

Disease		194	4 1943
Gonorrhea,	New Old	27	50
Syphilis,	New Old	2	15
Lymphogran	uloma	 0	3
Chancroid		<u>0</u> 32	<u>4</u> 81

The venereal disease rates for 1943, 1944 and the first half of 1945 are as follows:

1st 6 mos of 1945 - 19.4 per thousand per annum
1944 - 11.8 per thousand per annum
1943 - 16.3 per thousand per annum

Seventy percent of the clandestine relations are with women the names of whom are unknown to the soldier and only a few of these have charged a fee. It can be said that prostitution per se plays but a small part in our venereal disease rate. Cur problem is with the "teen" age group of colored and white girls who are promiscuous in their relations with soldiers to the extent of meeting them for the first time on the street and proceeding to a field for sexual relations.

In May 1943 the Bermuda Medical and Health Department began an active venereal disease control program under the new regulations promulgated by the local government. In addition to modernized regulations they increased the staff of their Central Health Bureau by assigning an Assistant Senior Medical Officer with special duties in venereal disease control. The results of this activity are shown by the attendance records at the venereal disease clinics.

May 1943		167
September	1943	463
September	1944	1125

The above figures do not represent numbers of persons under treatment but the number of treatments or checkups during the month. During September 1944 the local health authorities had 499 patients under treatment and 116 persons under observation following a reversal of their serology.

/s/ Milton T. MacDonald /t/ MILTON T. MacDONALD Major, Med Corps Surgeon

HISTORY OF PREVENTIVE MEDICINE IN WORLD WAR II

GREENLAND BASE COMMAND



OFFICE OF THE BASE SURGEON Greenland Base Command APO # 858, c/o Postmaster New York, N.Y.

314.7

27 August 1945

SUBJECT:

History of Preventive Medicine in the Greenland Base Command.

TO

Commanding General, Hq Eastern Defense Command, Governors Island, New York, 4, N.Y. (ATTN: Surgeon).

THRU

Commanding Officer, Greenland Base Command, APO # 858, c/o Postmaster, New York, N.Y.

In compliance with ltr. 314.7, Hq Eastern Defense Command, subject, "History of Preventive Medicine in World War II," dated 28 July 1945, the following medical history of the Greenland Base Command is submitted:

I INTRODUCTORY REMARKS

On 6 July 1941 the USS Munargo arrived in Greenland and the first American troops went ashore at the present site of Narsarssuak Army Air Base, APO #858 NYC. Among the original task force were two officers and fourteen enlisted men of the Medical Department who immediately established a dispensary which was used until 10 August 1941. On this date a ten bed field hospital was set up in tents. This hospital served until 4 October 1941 when it was moved into a permanent type building and began operating as the twenty bed 188th Station Hospital.

A gradual increase in personnel and the need for additional hospital and equipment space brought about another move on 6 June 1942. The warehouse buildings adjoining the airstrip were utilized for use as a hospital and the bed capacity was raised to fifty-five. It functioned as such until 11 December 1943 when the present buildings were ready for occupancy and the 188th Station Hospital was enlarged to a two hundred fifty (250) bed capacity at the time.

Due to gradual reduction of military personnel and the total absence of civilian personnel on this base by midsummer 1944, the 188th Station Hospital was reduced to two hundred (200) beds on 1 July of that year. Continued reduction of military personnel after this time resulted in a further reduction on 6 March 1945, this time to one hundred beds, and on 30 June 1945 the hospital was functioning as such although a further reduction was contemplated in the near future.

Medical service was established at Ivigtut Army Air Base, APO #615 NYC, on 18 March 1942 upon the arrival of an army force accompanied by one medical officer. On 3 Sept 1942 the 189th Station Hospital was activated with a capacity of twentyfive (25) beds and during the year three medical officers and one dental officer were assigned to that installation. By May 1943 another medical officer was assigned and the enlisted strength of the medical department was raised to twenty-five. Navy #26 also maintained a base at Ivigtut and the Naval medical and dental officers of that unit helped greatly to relieve the strain upon the army medical cfficers although all navy personnel were still admitted to the army hospital. During August 1944 most army units departed from APC #615, among them the 139th Station Hospital which was disbanded at that time. Personnel were either returned to the United States as excess or absorbed by the 188th Station Hospital at Narsarssuak AAB.

On 7 October 1941 a contingent of army personnel arrived at the head of Sondrestrom Fjord, among them one medical officer. This is the northernmost base in Greenland, situated on the west coast and well above the arctic circle. The base is now known as Sondrestrom Fjord Army Air Base, APO #859 NYC. The 190th Station Hospital was established there on 10 Sept 1942 with a T/O of two hundred (200) beds. On 29 Sept 1943 the T/O was reduced to fifty (50) beds and a further reduction to twenty-five (25) beds was accomplished on 1 July 1944. On June 1945 the 190th Station Hospital was still operating under this T/O although with a reduced personnel.

Medical service at what is now known as Ikateq Army Air Base, APO #679 NYC, was established on 2 November 1941 upon the arrival of army personnel accompanied by one medical officer near Angmagssalik, Greenland. This is the only army installation of any size on the east coast of this island and on 26 June 1942 the 191st Station Hospital was activated there with a bed capacity of one hundred fifty (150). During the period 2 November 1941 to 26 June 1942 the medical service was provided by a U.S.E.D. dispensary commanded by the medical officer and manned by civilian personnel. On 17 July 1943 the hospital was reduced to fifty (50) beds since previous plans for the post had not materialized and there was no need for a larger hospital. On 1 July 1944 the 191st Station Hospital was reduced to twenty-five (25) beds and operated as such through 30 June 1945 with reduced strength similar to the policy in effect at the 190th Station Hospital.

The Air Corps has maintained weather stations in various parts of Greenland since shortly after the arrival of the first troops, personnel ranging from a half dozen to fifty men at each station, depending on duties and location. Each outpost has a

medical enlisted man at present but until the early part of 1944 the three larger stations, Marrak, Gamatron, and Simiutak were served by medical officers on a rotating basis, three months outpost duty and three months duty at the station hospital. These officers were assigned to the 188th Station Hospital, therefore, upon reduction of medical personnel at that installation it was no longer possible to furnish medical officers to these outposts. They were replaced with enlisted men especially trained for that type of duty and without exception this policy has worked out very well as emergency cases beyond the scope of the enlisted men's ability can easily be evacuated to the nearest station hospital. Screening and final approval of all candidates for outpost duty rests with the Flight Surgeon whose report on this procedure is added as inclosure #1.

The organization of the Medical Department in Greenland is headed by the Base Surgeon, a position created 1 June 1942. Except for a short period early in 1943 the Base Surgeon has also assumed the position of Commanding Officer of the 188th Station Hospital as an additional duty. This office is responsible for formulating the medical policies followed in Greenland.

Due to the large amounts of foods and the increasing number of sledge dogs in this command a Veterinary Officer was assigned in October 1943. His duties are principally at the main base at Narsarssuak but oftentimes trips to other bases in Greenland are necessary for the successful discharge of his duties. Inclosure #2 attached is a full report of veterinary activity in this command.

Fifteen (15) army nurses arrived in Greenland on 17 January 1944 and were assigned to the 188th Station Hospital. Nursing service was established on 19 January 1944 and on 30 June 1945 was still in force although the original group of nurses had by this time dwindled to six. The 188th Station Hospital is the only installation on this island to have nurses assigned at any time.

The office of the Base Dental Surgeon was created in February 1945. Like the Base Surgeon and Base Veterinarian his duties are mainly at APC #858, but trips to the other bases and outposts are made as necessary for close contact and cooperation. Prior to the creation of this office the senior dental officer acted in this capacity. The Dental Surgeon's report is added as inclosure #3.

II SANITATION

- 1. Clothing: Clothing has been adequate both in quality and quantity for the climate encountered. The Greenland winters are long and severe but all personnel have an ample supply of arctic clothing and are instructed in its use. Consequently, cases of frostbite or frozen limbs due to exposure have been infrequent.
- 2. Housing: Housing has presented no problem in Greenland. Most buildings are of wooden frame type with a scattering of Quonset huts. All buildings are heated with oil stoves with the exception of the 188th Station Hospital and the Greenland Base Command Headquarters building at APC #858.
- 3. Food and Nutrition: Food supply has been one of the biggest problems arising in this command. Quantity has been below normal on numerous occasions and fresh fruits and vegetables are rarely to be had. For this reason dehydrated foods have necessarily formed a large part of the diet but with proper preparation and varying menus it has proved to be both appetizing and nourishing. Calcium and vitamin tablets have always been available to supplement the regular diet and to this date no serious nutritional problems have been encountered. The veterinary report inclosed has additional information on this subject.
- 4. Personal Hygiene: Personal hygiene has always been very satisfactory in this command. Running water is available at all main installations the year around and ample cleansing facilities for all personnel is provided. Monthly physical examinations are held and dental examinations are given periodically to insure high standards of health among the troops. At the larger bases laundry and dry cleaning facilities are also available at the option of the men.
- 5. Water: Water supply in Greenland is excellent. At APO #858 and AFC #679 it is derived from reservoirs fed by streams and this water does not require chlorination. APC 859 is supplied from a lake and water is hauled daily by truck to storage tanks. This supply is chlorinated. All water sources receive routine weekly analysis and have always been pronounced pure and potable.

Outposts obtain water from nearby lakes and streams which are piped to buildings during the summer menths and carried in cans during the winter to storage tanks where it is chlorinated and tested before use.

6. <u>Disposal of Waste</u>: The main bases are equipped with sewage systems for disposal of human waste. These systems empty into nearby rivers or fjords. Cutposts are equipped with chemical toilets.

All fcod waste at the main bases and at the cutposts is disposed of by incineration.

- 7. Control of Insects: Insect control has never been a problem in this command. There is an overabundance of mosquitoes during the few summer months but satisfactory preventive measures are taken by covering the breeding spots with a thin oil film. Insects other than mosquitoes are negligible and present no problem.
- 8. Control of Rodents: Rodent control like insect control causes little concern in Greenland. A variety of rabbits are the only rodents found and these are not numerous. Mice and rats are unknown on this island.

III SANITARY ENGINEERING

1. No special projects in sanitary engineering have been accomplished to this date. The problems of water supply and waste disposal were the only ones encountered and these were easily met in a satisfactory manner within a short period after the arrival of the first troops.

IV EPIDEMICLOGY

1. <u>Immunization</u>: Special immunization is not required by troops serving in Greenland, as Cholera, Typhus, and Yellow Fever are not known in this command. Stimulating doses of typhoid vaccine are given at twelve month periods and smallpox vaccinations are given at three year intervals as required by regulations. Ctherwise, only personnel not completing a routine series of immunization in the United States are processed upon arrival in Greenland.

Following completion of the initial series of Tetanus Toxoid vaccine and the required stimulating dose, inoculation is given only to persons in danger of infection from fresh cuts or gunshot wounds. At the present time all personnel of this command have completed required immunizations.

- 2. <u>Intestinal Infections</u>: There is no record of any serious outbreak of intestinal infections. We have never had any cases of amebic or bacillary dysentery, cholera, or protozoan infections. There have been a few isolated instances of common diarrhea resulting from spoiled or improperly prepared food but never to any serious extent.
- 3. Infections of the Respiratory Tract and Infections
 Transmitted by Discharges from the Respiratory Tract: Infections
 of the respiratory tract are normally uncommen in Greenland. The
 weather has had a favorable effect in this regard. However, the
 incidence of upper respiratory infections would invariably increase

with the arrival of casuals from outside the island in Greenland. Due to the isolation of our bases there is an apparent increase in the susceptibility of our personnel to upper respiratory organisms introduced by casuals. In one instance in 1944 it was necessary to quarantine Narsarssuak Air Base to control a mild epidemic of upper respiratory infection.

- 4. <u>Miscellaneous Infections</u>: No serious miscellaneous infections have occurred in Greenland which would be of any importance.
- 5. <u>Nutritional and Environmental Diseases</u>: In spite of occasional nutritional deficiencies in our diet no significant nutritional or environmental diseases have occurred.

V VENEREAL DISEASE CONTROL

The incidences of venereal diseases in general and syphilis in particular have always been extremely low in Greenland. The few cases of syphilis reported from here were invariably contracted outside the island. Because of the Greenland law that no syphilitic cases could be treated here such cases had to be evacuated to the United States. Generate is not particularly prevalent in the island.

Venereal disease control measures have probably not been sufficiently stressed here in view of the very low incidence of venereal diseases. However, personnel returning to or on first arriving in Greenland are very carefully examined for evidence of venereal disease. Men leaving their bases for emergency furlough or temporary duty in the U.S. are provided with both mechanical and chemical protective devices against venereal disease, also, troops in this command are given sex hygiene education as a part of the routine training program.

/s/ Maurice J. Spector
/t/ MAURICE J. SPECTOR
Major, MC
Base Surgeon

3 Incls:

1 Flight Surgeon's Report

1 Base Veterinary Report

1 Base Dental Surgeon's Report

OFFICE OF THE FLIGHT SURGEON
Narsarssuak Army Air Base
APO 858 c/o Postmaster
New York, N.Y.

MEDICAL SCREENING OF OUTPOST PERSONNEL

It is the purpose of this paper to briefly, but it is hoped emphatically, set forth the problem of proper selection of outpost candidates. The standards set up must be rigid physically and mentally for reason of the complete isolation of these men in approximate groups of ten for a period of eight to ten months.

Despite excellent rescue equipment, including planes equipped for landings on water, ice, land and snow, ice cutters, and sled teams, there are areas inaccessible for long periods of time. Autogiros and helicopters offer only a partial solution (we do not have these available) because of extreme weather conditions, particularly high winds which often prevail in these areas.

In view of the above general conditions, in our physical and mental examinations, we have disqualified any individual whose medical history or examination revealed any condition of sufficient gravity, either present, or likely to exist during that period of outpost duty, which required evacuation. Examples of medical history frequently disqualifying are:

- 1. History of repeated attacks of appendicitis.
- 2. Peptic ulcer.
- 3. Low back pain of moderate degree with absence of physical signs.
- 4. History of arthritis more than mild in degree.
- 5. Kidney stones.
- 6. Asthma.
- 7. Definite mental disease or abnormality.

In addition to above examples found in history, such conditions as are noted on inclosed copy of "Physical Standards for Cutpost Examination."

Psychiatric interview will result in the largest number of disqualifications. Mental breakdowns are very frequent due to the extreme isolation in arctic conditions for long periods, and, as a result, an examination, similar to "ARMA" (Adaptability Rating for Military Aeronautics) given to Air Corps Flying Personnel, is conducted in which adaptability to arctic conditions is estimated.

As examples of the factors considered:

- 1. City or country environment and adaptability to same.
- 2. Outdoor or indoor preferences.
- 3. Dependent or independent personality types.
- 4. Evidences of emotional, mental, or vasomotor instabilities, or other psychiatric disturbance.

In regard to men sent to this base from the States, very few have been found by this office to be disqualified for overseas duty of either limited or general type; however, for isolated duty, well over 50% have been disqualified by this office, and in some groups over 90%. These high rates in themselves attest to the necessity of more adequate arctic isolation examinations in the States. In general, the facts to be kept in mind in conducting these examinations are: That the outpost men must be capable of physically and mentally sustaining the climatic conditions and isolation with approximately ten men over a period of eight months to a year.

All members subjected to outpost examination are volunteers to exclude as much as possible distortion of their complaints. They are returned to the Continental Limits of the United States upon completion of Outpost tour, usually approximately one year, as contrasted to normal overseas tour of the theater which has varied from 18 months to 2 years. As stated previously, men disqualified for outpost are rarely found to be disqualified for oversea duty, and are then placed on duty at BE 2, BW 8, or BW 1, the three main bases of Greenland.

Because of the efforts of the medical men assigned in adhering to rigid standards of selection, our problem has been in great part solved. Seldom now for causes other than traumatic do we have cases requiring evacuation in isolated areas where no evacuation is possible without endangering several other lives, particularly has this been true of the manic psychiatric breakdowns so destructive to morale. Correspondence with higher echelons pointing out the necessity of more adequate selection has availed nothing. The problems could not be understood by others than those who had actually lived under arctic conditions and isolation, and seen the results of too poor a mental or physical examination, with an outpost soldier living day by day, not for a week or a month, but from nine to twelve months, in a monotonous existence with numbing cold, howling winds, and nothing but ice and snow for surroundings.

In view of the above, it has been the opinion of all medical men, engaged in outpost examinations here, that Arctic Schools be set up to determine preliminary adaptability as well as actual training in some central area with physical and mental examinations conducted by medical officers attached who are acquainted, if possible, by actual experience with arctic problems. This is to prevent psychiatric problems as well as theater manpower situations due to inadequate preliminary selection.

Inclosure #1 - Page 2

PHYSICAL STANDARDS for OUTPOST EXAMINATION

- 1. To be Class I (Outpost Physical Rating) for isolated duty in the Arctic, a man should be in excellent physical condition with only minor defects, as follows:
 - a. <u>VISION</u>: 20/40 minimum uncorrected, either eye.
 - b. HEARING: 20/20 both ears.
- c. <u>COLOR VISION</u>: Should be able to differentiate between true red and true green.
 - d. TEETH: Class IV.
- e. HEART, LUNGS, BLCCD PRESSURE AND FULSE: Essentially normal.
- f. GASTROINTESTINAL: No chronic disease. Neurasthenia gastrica considered disqualifying.
 - g. GENITOURINARY: Free of any disease.
- h. EXTREMITIES: No gross deformities or limitation of motion beyond 10%.
- i. <u>VARICOSE VEINS</u>: No varicosities other than those mild in degree.
 - j. <u>VARICOCELE</u>: Considered disqualifying if symptomatic.
 - k. HERNIA: Inguinal hernia considered disqualifying.
 - 1. HEMCRRHCIDS: More than minimal considered disqualifying.
 - m. AGE: 21 33 years of age.

Such a man is qualified for any type of outpost duty.

- 2. Our Class II is an individual who comes up to the requirements of Class I with one or two minor exceptions, such as 20/100 vision uncorrected. Such an individual would be more suited for Section I, Ivigtut, Marrak, or other larger outpost. However, some of the individuals, after careful evaluation and consideration, could be used for isolated outposts if no Class I men were available, e.g., defects in a., b., c., greater in degree than noted above.
- 3. Class III. Men not considered suitable for any type of outpost duty.

 Inclosure #1 Page 3

OFFICE OF THE BASE VETERINARIAN GREENLAND BASE CCMMAND APO 858, c/o Postmaster New York, N. Y.

REPORT OF VETERINARY SERVICE

Frior to Cctober 1943, there was no veterinary service in Greenland. Until that time, all food inspection was conducted by the medical inspectors at the various bases. Problems related to veterinary medical care of the sledge dogs were managed by the dog handlers. Because many difficulties and questions arose concerning subjects that properly fell under the jurisdiction of the Veterinary Corps, the Surgeon and the Commanding Officer of Greenland Base Command considered it advisable to requisition a veterinary officer.

The Veterinary Department in its present form began functioning in December 1943, with the opening of the new hospital at APC #858. A limited but sufficient supply of instruments, the necessary drugs and medicines, and other equipment were obtained from Medical Supply. A crude but satisfactory operating and examining table was constructed, and the necessary Medical Department forms were mimeographed. An enlisted man of the Medical Detachment of the 188th Station Hospital was assigned to the Veterinary Officer to assist with the clerical work. Eventually additional veterinary biologics and drugs were received. The Veterinary Service in Greenland has had the dual function of care of the Army sledge dogs and inspection of food.

I Care of Dogs

The dogs used by Greenland Base Command were obtained from Danes and Eskimos in Greenland. Records of the sale are incomplete, but approximately one hundred and thirty-five (135) adult animals, all over two years of age, were purchased. They are of a type generally known as "Greenland Eskimo" or "Husky," with the exception of four (4) dogs produced from the States. They are of a hardy, rugged breed, and only the toughest could survive the harsh, rough, and inhuman treatment they endured under the Greenlanders. They seldom become ill or require veterinary care. No adequate records were kept on the Army canines before October 1943. There was much indiscriminate breeding and poor management. These conditions were corrected when the responsibility of caring for them was assigned to the newly formed 1st Arctic Search and Rescue Squadron. Quartermaster Form No. 120 was completed for each of the dogs.

Inclosure #2 - Page 1

In view of the information available in December 1943, and at the advice of the Office of The Surgeon General, it was considered unnecessary to vaccinate the sledge dogs against rabies and canine distemper at that time. Sanitary regulations were instituted to prevent introducing new dogs into Greenland and thereby to avoid exposing Army sledge dogs to disease. A severe distemper epidemic broke out among the mongrel pets at Narsarssuak Army Air Base (BWI), APO #858, in September 1944. The source of the infection could not be determined. Every dog on the Base was infected, a few old mongrels excepted. In order to control the disease and prevent its spread to the isolated Dog Camp Area, rigid veterinary police methods were enforced. All strays were killed, and all dogs manifesting definite symptoms of distemper were destroyed. Tissue specimens were sent to an Army laboratory in the States, and the diagnosis of distemper was confirmed. A large supply of serum and vaccine was ordered immediately, and plans were made to vaccinate all the Army dogs. The epidemic subsided completely and there were no new cases during the last two weeks of October and the month of November 1944. It appeared that the strict veterinary police methods were successful in confining the disease to the Base.

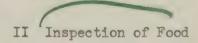
Distemper broke out in the Dog Camp at the end of November 1944. The source of the epidemic could not be discovered. The serum and vaccine that had been ordered from the States two months previously had not yet arrived from the States, and the infection spread rapidly among the unprotected dogs. A total of fifty-three (53) dogs either died or had to be killed because of severe nervous symptoms. Thirty-six (36) of these animals were registered as Army dogs. Four dogs that had been obtained in the States and had been vaccinated against distemper there were not ill during the epidemic. The sulfa drugs did not seem to affect the course of the disease. One dog received 400,000 units of penicillin and made a recovery, but subsequently had to be killed because of a severe weakness in the hind legs.

The vaccination of Army sledge dogs in Greenland was begun in January 1945, and with the exception of some puppies too young to be vaccinated and dogs at remote outposts that could not be reached, all the canines have been vaccinated against distemper by the Laidlaw-Dunkin Method. The greatest difficulty encountered was obtaining a viable virus. Delays in airplane traffic from the States and between the various bases of Greenland where the sledge dogs are located has caused the inoculum to become outdated before it could be used. To remedy this defect, the Fromm (Green) Method of vaccination for distemper is now being used. This distemperoid virus will keep much better and for longer periods than the Laidlaw-Dunkin virus.

Inclosure #2 - Page 2

Prior to May 1945, the dogs in this Command were never vaccinated against rabies. Numerous inquiries were made concerning the prevalence of this disease in Greenland, and, as far as could be learned, there had never been an authentic case of rabies. This information was discussed with the surgeons, and it was decided that vaccination was not necessary. Advice on the subject was also requested from the Office of The Surgeon General, and that office suggested that prophylactic measures were not required under the circumstances. However, in January 1944, fortyfive sledge dogs were sent to the European Theater, and were scheduled to be returned to this Command. (Eventually sixteen dogs were returned.) Since these animals were returning from questionable areas, where rabies is endemic, it was considered advisable to protect the dogs in Greenland. Furthermore, the expected increase in shipping and airplane traffic during the summer months strengthened the possibility of disease being introduced from these sources. In spite of all regulations and efforts to the contrary, mascots and pets from Navy, Coast Guard, and Merchant ships, and even from airplanes, occasionally are brought on the Base. At present, all the dogs in Greenland, both Army dogs and mongrel pets, have received rabies inoculations.

In April 1945 a routine monthly stool examination for every Army canine in Greenland was instituted, and treatment was administered where indicated. Ascarides and hookworms are the only intestinal parasites that have been discovered. Hookworm seems to be the more prevalent intestinal parasite. An effort is being made to obtain stool specimens from canines in isolated sledging districts of Greenland (North Greenland) for further investigation. In contrast to conditions in the States, no difficulty has ever been encountered with mange, so-called "summer itch," eczemas, or other skin diseases. Perhaps this can be explained partially by the fact that there is a complete absence of external parasites among the dogs. Fleas, lice, and ticks have never been seen. The absence of fleas also may explain the nonexistence of the common tapeworm Dipylidium Caninum. Generally speaking, Greenland seems to be a very healthful country for dogs.



It has not been possible for the one Veterinary Officer to conduct a thorough food inspection service in all of Greenland. Frequent trips are made to the various bases and accessible outposts for routine inspection. Occasionally, at the request of the Quartermaster or Surgeon at the various bases, special trips have been made when specific problems have arisen. A complete food inspection service is conducted at Narsarssuak Army Air Base (BW1), APO #858, for the Veterinary Officer is in attendance at that base

most of the time. The medical inspectors control the inspection of food at the other posts in the intervals between periodic visits of the Veterinary Officer. Important problems are always referred to the Veterinary Officer, and samples of foods are returned to APO #858 for inspection. No final disposition is made of any food product without the knowledge and permission of the Veterinary Officer.

Since the inception of the Veterinary Service in Greenland in October 1943, three large shipments of perishable foods have been received. "The Roche," a reefer ship, brought the supply each time. Each shipment contained about 14,000 tons, and included both frozen and chilled cargo. A typical "Roche" shipment contained the following items:

MEAT

Beef, Roasting and Frying Beef, Stewing and Boiling Beef, Chopped

Beef, Liver Pork, Butts Pork, Loins

Pork, Luncheon Meat

Poultry, Chicken Poultry, Turkey

Sausage

Bologna Frankfurters Pork Link Cervelat

Liver Salami Thuringer

Veal, Carcass Ham, Overseas

FRESH FROZEN VEGETABLES

Asparagus Beans, Lima Beans, String Beans, Wax Beets. Cauliflower

Peas Spinach Broccoli Corn

FRESH FROZEN FRUIT

Blackberries Cherries Strawberries Huckleberries Peaches Raspberries Apricots Blueberries

Loganberries

Plums

FRESH FRUIT

Apples Oranges Lemons

FRESH VEGETABLES

Beets Onions Peppers Potatoes Turnips Cabbage Celery Carrots Sweet Potatoes

Inclosure #2 - Page 4

DAIRY PRODUCTS

Butter
Cheddar Cheese
Processed Cheese, American
Swiss Cheese
Cream Cheese
Fresh Eggs

Depending upon the types of fresh fruits and vegetables and their condition on arrival, the amount of these items was usually sufficient to supply the Command for six weeks to three months. The frozen products and dairy products were usually in sufficient quantity to last about six months. In addition to the cargo delivered by a reefer ship twice a year, supplementary supplies of perishables were occasionally delivered in Navy Tankers, Coast Guard Cutters, and Army Transports which had small reefer holds.

There is ample chiled and frozen storage space at all the main bases. However, the refrigerators are not of ideal construction, especially in insulation, and some difficulty has been met in maintaining storage temperatures. In the summer the sun is sufficiently warm to heat the walls of storage buildings, and products placed adjacent to outside walls are sometimes actually heated. This was remedied shortly after the arrival of the Veterinary Officer by using more dunnage between the walls and the stored crates, and by allowing space for greater circulation of the cold air. At Sondrestrom Fjord Army Air Base (BW8), APO #859, above the Arctic Circle, the temperature drops so low during winter months that every storage room has a minus zero F. temperature. This has required the storage of fresh foods in warehouses that are heated sufficiently to keep the product from freezing.

The greater portion of the food arrives in good condition, but there have been notable exceptions. An outstanding example was the cargo received from the "Roche" (B.O. 394) in November 1943. The ship encountered heavy seas, and two scuppers broke open, allowing nine feet of water to enter the two frozen holds. The ship put in at St. John's, Newfoundland, APO 862, where the cargo was unloaded and reinspected by the Veterinary Corps, and the rejected products were replaced. The cargo was reloaded in a disorderly fashion, and in unloading in Greenland, it was necessary to sort the cargo for storage. The shipment required close inspection, for some of the cargo had been watersoaked, large pieces of ice were formed on the meats, boxes and crates had been broken and their contents contaminated, and all the carcass meat was unsanitary and dirty. Almost the entire cargo was salvaged, but much of the food required trimming and thorough cleaning before it could be used. On numerous other occasions fresh vegetables and fruits have arrived in a frozen condition. Frequently such products have been beyond salvage, but if it was at all possible, some use was made of them. A notable example was a huge supply of onions that arrived frozen. The onions were placed in frozen storage at Narsarssuak Army Air Base, since they could be

preserved only in this way. Most of this shipment was finally reclaimed by cooking, over a period of ten months.

The storage of shell eggs for long periods was finally solved at Narsarssuak Army Air Base. Of all the foods issued, fresh eggs have as high a morale value as any other item. The quantity received is usually large enough for six months. However, at the beginning of the Veterinary Service in Greenland most personnel could enjoy the eggs only for the first two months of storage. During the third month only the inveterate eaters of eggs could relish them. In the fourth month some people could eat them scrambled and sprinkled liberally with ketchup. After the fourth month they were fit only for the garbage dump, and had to be disposed of by survey. The speiling was due to the fact that the eggs were stored at too high a temperature, without sufficient provisions for ventilating the boxes and circulating air around the crates. Engineers at Narsarssuak Army Air Base reconstructed two refrigerator units, so that they could hold a constant temperature of 30° F. Ventilation was improved, and arrangements were made to air the storage boxes periodically, to remove the characteristic stale odor that eggs acquire so early in storage. Unfortunately similar storage facilities for eggs could not be provided at the other two main bases now in operation. At Sondrestrom Fjord Army Air Base eggs must be stored in a heated warehouse to prevent freezing in winter. Because the storage rooms are heated by crude oil stoves, it is difficult to maintain the correct temperature constantly, and they are often too warm.

Milk is probably missed by more soldiers overseas than any other food item. No fresh milk is available in this Command, but every effort has been made to furnish a reasonably good substitute. Mechanical cows were obtained, but proved to be a complete failure. They repeatedly failed mechanically and required constant supervision to make certain that the operators were producing the milk in a sanitary condition. Furthermore, the product resembled milk only in color. Perhaps the poor quality of the product was due to the ingredients. Sufficent fresh butter was not available for both table use and the manufacture of milk, and it was thought preferable to issue it directly. Moreover, the butter was salted, and required the time-consuming work of desalting before it could be utilized in the mechanical cow. When butter cil was substituted for butter fat, the resulting milk was not satisfactory.

It was found that a comparatively good reconstituted whole milk could be manufactured by the simple mechanical mixing of whole powdered milk and water. Various formulae and mixtures were tried. The following method resulted in a product superior in flavor to milk produced by the mechanical cow. Water is boiled, and then cooled to approximately 100° F. and placed in a mixing bowl. Fowedered whole milk is distributed on the surface of the water in

proportions of four ounces per quart of water, and the mixture is stirred. It is cooled and aged in a refrigerator overnight before serving. Many men will drink this milk, but the failure of most personnel to drink reconstituted milk appears to be due largely to a psychological factor. This was proved in May 1944 by a sampling experiment. Six officers and one noncommissioned officer were asked to taste several samples of milk, one of which was fresh pasteurized cow's milk. Not one of the men was able to distinguish the pasteurized milk from the other samples.

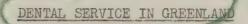
Enormous stock piles of food were built up at all the bases in Greenland up to and through the summer of 1943. Much of this food was brought into Greenland by civilian contractors while they were constructing the bases. Sudden and unexpected decreases in strength caused these huge amounts of food to become excess. The Quarter-master was informed that much of this surplus was being stored longer than the expected life of the products. However, it was not possible to return any of it to the States during the summer shipping season of 1944 because of lack of cargo space.

Further reductions in personnel have now created even larger food surpluses, and an effort is being made to return the food to the States. Since March 1944, the Veterinary Service has inspected prodigious supplies of surplus food. Much of it is no longer suitable for human consumption and has been destroyed. This is especially true of enormous amounts of canned goods that have been in storage in Greenland for as long as four years. During this period the cans have been frozen and thawed many times. This has resulted in seams breaking, contents of cans running out, and cans rusting through. Salvage of the food that remains is being attempted. If there is any doubt of the suitability of the products for food, samples are submitted to the Army Veterinary School, Army Medical Center, Washington, D. C., for analysis and recommendation.

In general, the quality and quantity of food in Greenland Base Command has been satisfactory. The Base has had its sieges of spam, C-ration, stabilized butter, and dehydrated potatoes. The length of periods of food shortages has varied from a few weeks to a few months, while a new shipment of food was awaited. Complete lack of perishable foods has occurred more frequently at outposts, although efforts have been made to supply inaccessible stations with food dropped by air.

All food consumed in Greenland arrives from the Boston Port of Embarkation. Since the food is already Army property, there have been no rejections because of Type, Grade, or Class. Condemnations for unsanitary conditions have been rare. If the food or any portion of it is edible, it is utilized, even though it may require extensive trimming and washing. The greatest problem of the Veterinary Service in relation to food has been proper storage to insure preservation for extended periods.

OFFICE OF THE BASE DENTAL SURGEON GREENLAND BASE COMMAND APO 858 c/o Postmaster New York, N. Y.



Preventive dentistry in Greenland didn't take any shape or form until October 1943. Prior to that time, due to lack of facilities and supplies, the dental service consisted only of emergency treatment per se. There was a sick call each morning at which time any soldier or civilian who had a dental complaint presented himself. At this time only the chief complaint was noted and treated even though other work was visible. With very few exceptions no future appointments were made.

In October 1943, plans were made for moving into a new, much larger, and well appointed hospital. The dental staff at this time did a complete survey using the routine I, II, III, and IV Army classifications and, when the move to the new hospital was made, set up a plan whereby preventive measures could be instituted. Subsequently, a sick call was still held but, as each classification group was cleared up, the emergency sittings dropped off proportionately.

Unfortunately, the mouths of the Army personnel were very bad, and there was a preponderance of class I and class III cases. The civilian construction employees were in much worse condition. The latter was understandable, but no logical explanation for the condition of the Army personnel has ever been put forth.

The dental equipment at all the bases in Greenland was adequate, and at the main base we were set up to do a complete routine day's work. The men were called in according to classification and, as they were treated, went from class I to class II, III, or IV. All routine work was done by appointment, and in about eleven months the dental condition of the men in Greenland was good. Every type of work was done, including operative, prosthetics, crown and bridge, root canal therapy, surgery, etc. We were fortunate in having a dental laboratory technician who did excellent work; he worked very rapidly and most of the glaring class III cases were cared for in about seven or eight months.

The biggest dental problem in Greenland was the sending of dentally fit men to isolated outposts. There are eight or nine isolated and semi-isolated outposts, (weather and radio stations, etc.), where transportation in and out is limited to one or perhaps two trips a year except in an emergency when a rescue plane

Inclosure #3 - Page 1

might attempt a water or ski landing. The personnel sent to these outposts were, for the most part, men who had volunteered for such duty while in the States. As such, they were supposed to have had a complete dental examination before being sent overseas. However, in 65% of the cases the mouths were in very poor repair. During the winter 1943-44, between (ctober and February, there were approximately eleven or twelve radiograms sent to the main base asking for emergency evacuation of dental patients. In two of these cases the Arctic Search and Rescue Squadron was able to effect a skiplane landing and successfully evacuate the men. When the outpost personnel were being changed the following summer, an effort was made to survey the men returning from isolated duty of from six to eleven months duration. The mouths of these men were found to be in a poor state of repair.

The first preventive steps were taken in June 1944. Radiograms had been sent to all the schools where outpost men were selected and trained. These requested that full mouth X-rays, as well as complete minor and explorer examinations, be made. It was also requested that all doubtful teeth be extracted, and that missing teeth be replaced to whatever requirement thought practicable by the examining dental officer. It was felt that this would solve our problem for the following winter.

In June 1944, however, when the outpost men began to arrive in Greenland for duty, it was decided to check them again to make doubly certain. We carried out the same examination we had recommended and found that approximately 70% to 75% of the men so examined needed dental work. Fifty percent of the caries and abscessed teeth were picked up by the use of X-ray. Apparently, this had been overlooked in the States. It is apparent also that our problem is not understood by anyone except those of us here for, although we had sent out wire after wire, when 200 men arrived here in June 1945 for examination prior to outpost duty, it was found that the same conditions prevailed. We have had, as a rule, ample time---from two to three months---in which to ready these men for their duties. However, we must devote all of our time to them with the result that the permanent base personnel are not, except in emergencies, given any treatment during the summer months.

Our labors were not in vain for during the winter 1944-45 we had no emergency calls from isolated outposts for eight months. This was far better than our expectations because, in any event, we had expected there would be trouble of some kind. There were a few cases of pericoronitis which our medical corpsmen treated conservatively with good results. A similarly good record is looked for during the forthcoming winter.

Inclosure #3 - Page 2

For a period of a year and a half one of our dental officers travelled by boat and by plane to the semi-isolated outposts, of which there are two or three. He took with him an enlisted assistant, and they worked from a portable chest #60. Upon arrival at an outpost he would make a survey after which he would do all types of routine work even going as far as the taking of impressions for dentures. In other words, not only was emergency treatment instituted but preventive dentistry as well. In the few cases that needed extensive work, the surgeon, upon the return of the dental officer to the main base, would make the recommendation to the man's organization, and, if practicable, the man was brought in and the necessary dental work accomplished.

At the present writing, the dental condition of the men in Greenland is good. Preventive measures and routine work are still being accomplished. Unfortunately, new arrivals here are still not in good dental shape; the reason for this is worth investigating and, if found, should be corrected.



HISTORY OF PREVENTIVE MEDICINE IN WORLD WAR II

ICELAND BASE COMMAND



HEADQUARTERS ICELAND BASE COMMAND APO 610, c/o Postmaster New York, N. Y.

4 September 1945.

000.76

SUBJECT: Transmittal of History of Preventive Medicine in World War II.

Commanding General, Eastern Defense Command, Governors Island, New York 4, N. Y. (Attn: Surgeon).

l. Transmitted here with is a written history of preventive medicine activities of the Medical Department in Iceland Base Command from its inception in September 1941 through August 1945 in compliance with letter your headquarters, file 314.7 (Surgeon), subject: Preventive Medicine in World War II, dated 28 July 1945.

FOR THE COMMANDING GENERAL:

/s/ Anson I. Dreisen
ANSON I. DREISEN,
Lt Col, A. G. D.,
Adjutant General.

1 Incl:
History of Preventive Medicine.



HISTORY OF PREVENTIVE MEDICINE IN ICELAND

31 August 1945

I. Introductory Remarks.

The history of preventive medicine in the Iceland Base Command must of necessity be a prosaic one. There will be no record of outstanding feats accomplished, of great problems solved or dynamic personalities whose work will go down in history. Rather it will be a story of routine well accomplished, the proof to those who needed proof that the general system of sanitation set up by the U. S. Army is adequate for general problems and well worth the trouble and annoyance sometimes engendered by its application.

Since the inception of the command there have been no epidemics of infectious disease even though many of the troops sent here were barely more than recruits. There have been no nutritional diseases even though the country can not adequately feed itself and its waters were alive with submarines making transportation difficult.

Respiratory diseases have never been a problem in spite of the fact that the climate of Iceland has all the factors in abundance which generally are credited with the spread of such infections. Even venereal disease has been a relatively minor concern which is remarkable in an army living among a friendly civilian population.

II. Sanitation.

1. Clothing.

The men have been well clothed. The climate of Iceland is peculiar. The winters are actually not as cold as most of the troops expected or had been familiar with in their homes but at the same time because of the high winds could be definitely classed as severe. The summers are never really warm and resemble fall in the northeastern states. Woolen clothing was indicated for the entire year supplemented by that most useful and highly appreciated garment the parka for winter use. A man dressed in ODs and a parka was adequately clothed and comfortable and still able to perform his duties.

One change was made in the original plan for clothing the command. It was originally contemplated that woolen underwear was to be worn at all times and that was the only kind issued. However, permission was given for the men to purchase cotton underwear and wear it. Many took advantage of this to avoid overheating and subsequent discomfort. In recent months cotton underwear has been an item of issue.

One other item of clothing proved very effective and that is the overshoe arctic. During the time of year when snow is on the ground they are essential for foot comfort serving both to maintain dryness and also contributing to the warmth of the feet.

2. Housing.

Housing is very satisfactory. From the beginning use has been made of corrugated iron huts. Many British camps of Nissen built construction were occupied by our troops and proved very satisfactory. The gradual trend has been toward Quonset huts, however, since they provide more available floor space and at present few troops are quartered in the older type. Occasional Butler huts are encountered but it is the general opinion that they are not as satisfactory as the Quonset type due to lack of rigidity and draftiness. Overcrowding has never been permitted and regardless of the amount of available space, head to foct sleeping has been the only accepted procedure. The huts are heated by either oil or coal stoves both of which have been satisfactory. As a matter of fact, overheating is more commonly encountered than the opposite. One of the difficulties in metal hut sanitation is ventilation. The typical hut has windows only at the ends. It is rather difficult to provide fresh air without creating a draught and so in the colder months deliberate efforts to force ventilation are required by the responsible officers and NCOs.

The huts have wooden floors which can be kept clean and a high standard of cleanliness has always been maintained.

3. Food & Nutrition.

Food from the nutritional point of view has undergone considerable change with the passage of time. The original diet was definitely C ration. Monotony was the rule rather than the exception. Large quantities of dehydrated food were supplied. The word is chosen advisedly since much more was supplied than ever was consumed. The gradual change from a canned to a fresh status has introduced an element of deficiency in a very interesting manner. The men are much more apt to drink canned orange juice or tomato juice than to eat fresh oranges or tomatoes due to inertia, laziness or lack of aesthetic appeal in the type of fruit provided.

4. Personal Hygiene.

Personal hygiene has also made considerable progress by a gradual process of evolution rather than any organized program. At first, bathing facilities, especially in outpost camps, were quite limited and the personnel made use of civilian swimming pools or the shower facilities available in some of the larger camps. Now,

and for some time past, showers have been provided in adequate numbers everywhere and hot water either from boilers or hot springs has been available. At no time was personal hygiene so bad that any health menace was present.

A parallel trend has existed with regard to clothing. At first the quartermaster facilities for laundry and dry cleaning were very limited and for many troops nonexistent. Laundry was done either by civilians or the men did their own. There are still evidences of this in the number of homemade washing machines found in the various remaining organizations. The problem gradually solved itself. The outposts were closed and the quartermaster laundry expanded so that for the last two years the facilities have been adequate both for laundry and dry cleaning service.

5. Water.

The water supply of camps in Iceland has presented no health or engineering problems. In Reykjavik the civilian supply has been utilized and while the load sometimes taxed the capacity of the system there has never been any evidence that its potability has been endangered. All bacteriological tests ran consistently very good and the taste and appearance are also up to a high standard.

In other locations wells have been driven and an adequate source of pure water found for each camp. The question of contamination never arises due to the sparcity of population and the geological structure of the country which makes it relatively easy to select a watershed free from sources of contamination. Of course monthly bacteriological tests are run on all water supply systems but nothing is ever found to cause the least question to be raised as to its safety or potability.

6. Disposal of Waste.

Disposal of waste is accomplished by one of three methods depending on environmental factors. Where practical, sewer lines have been constructed running either to the sea or civilian sewer systems and flush toilets employed. In other situations flush toilets emptying in septic tanks have been utilized when the size of the camp made it practical to install such a local sewage disposal system, while in others which did not warrant such expenditure or which are located in areas not suitable for this purpose bucket type latrines emptied by civilian contractors have been employed.

Garbage has been disposed of mainly by dumping into the sea. This is accomplished without the use of scows as tidal action has been sufficient to remove it from the shore or shallow waters. Otherwise, where sea dumping was not practical, it has been used for cattle feed under contract with local farmers or just buried in pits. Garbage

disposal has always been less of a problem here than usually encountered because of the lower mean average temperature and other conditions which minimize bacterial action.

- 7. Control of Insects.
 - a. Flies.

The control of insects has presented no problem. The only insect encountered in Iceland with any frequency is a rather large indolent fly. As a matter of interest these flies cause no problem in mess halls or kitchens but are sometimes found in dwelling huts apparently seeking warmth rather than food. They are easily controlled by screens and spraying.

b. Mosquitoes.

Mosquitoes are very scarce and are not vectors of disease.

c.d.e.f. Ticks, Fleas, Cockroaches & Bedbugs, and Other Insects.

Control of the other types of insects such as ticks, fleas and household vermin is very simple. Extensive inquiry reveals no one, either officer or enlisted man who has seen or heard of their presence.

8. Control of Rodents.

Rats could be a very definite problem. The two varieties commonly found are the gray rat (Alexandrinus) and the brown rat (Norvegicus). Constant vigilance has resulted in maintenance of control, however, and no intensive programs have been necessary. A trained enlisted man, under the direction of the Base Medical Inspector, makes regular rounds of all camp sites. If reports or evidence of rodent activity are found poison bait is distributed in the camp. Barium salts are used for this purpose and have proved highly successful. Traps are available and are used to a limited extent in certain favorable circumstances. No disease has ever been attributed to the rat population in Iceland as far as the Military are concerned.

III. Sanitary Engineering.

Sanitary engineering in Iceland has been fairly well covered in that part of the report dealing with water supply and sewage. This program is still going on as the situation changes due to redistribution of troops. New wells are being sunk and sewage lines constructed at the present time in some of the camps in the Keflavik area where the center of troop concentration has moved in the past year. Sanitary engineering of other types, such as drainage, etc., has been negligible since nature does not necessitate such a program here.

IV. Epidemiology.

Epidemiology is limited principally to the study of what has not happened and an outline of the routine which has proved completely adequate in this command.

1. Immunization.

All of the personnel coming to Iceland have had the routine basic inoculations against tetanus and typhoid and have been vaccinated. Up to very recently all personnel have had, in addition, typhus fever inoculation, as required for the ETO.

2. Intestinal Infections.

Intestinal infections have been practically nonexistent in this command. In fact such long periods of time elapsed between the isolated cases that no special records of these diseases were kept. No epidemics of this type of disease ever occurred. Even in the early days of the command and during the period of maximum troop strength many weeks elapsed between cases and these were isolated individual cases, never groups.

3. Infections of the Respiratory Tract.

Infections of the respiratory tract are the largest single cause of admission in the command, but even these are in a number much less than would be expected from the troop strength and the cold, moist climate. There have been the usual seasonal variations in the admission rate. When it is considered that all upper respiratory diseases are hospitalized, the rate becomes even more exceptional. The average of the current year is approximately 120/1000 per annum. In all probability the fact that no diseases are treated in quarters probably has a great deal to do with the control of the spread of these infections in the command.

The incidence of pneumonia atypical is relatively high in this command. However, it is believed that this is due to the fact that all respiratory diseases are hospitalized here and given a much more thorough work-up than would be the case if they were treated in a dispensary or on quarters status. Thus many so-called severe bronchitides are found to have the diagnostic criteria of atypical pneumonia and are so recorded.

No plan for the control of upper respiratory disease has ever been needed except the insistence on the basic rules of sanitation, as prescribed, and the isolation of sick patients from contact with the rest of the command.

4. Miscellaneous Infections.

There are no infections indigenous to this area which have ever affected this command and so no programs for the control of such diseases were ever formulated.

5. Nutritional or Environmental Diseases.

Nutritional disease has never appeared among the troops in Iceland due undoubtably to the abundance and excellence of the diet provided.

Under the heading of environmental disease a discussion of the neuropsychiatric admission rate might be in order. The weather and scenic arrangement of Iceland probably have no equal anywhere in the inhabited civilized world as a source of depression. The literature of Iceland, its music, and the character of the people, all reflect its somberness. When troops are stationed in such an area for a long period of time with practically no activity, and living in isolated camps with poor mail service and no recent newspapers, the less stable are very prone to develop symptoms of a neuropsychiatric nature. The long periods some of the troops served here did not help the situation.

From the point of view of preventive medicine much has been done to help this situation. Rotation and temporary duty in the States for recuperation have helped as has improvement of the mail service, entertainment, etc. However, the basic situation of ennui in a very depressing environment cannot be helped.

V. Venereal Disease Control.

Venereal disease has never been a serious problem in the command. Among this was probably due to lack of communication more than any other reason. The few cases seen were traceable to external contacts usually in the seaports.

Since the occupation there has been an increase in the incidence of venereal disease with gonorrhea being by far the most common type. Each case has a report of contact filled out and excellent cooperation is obtained from the local authorities finding and treating the local sources of infection. Reinfection is introduced by transient personnel, and new arrivals, especially those arriving from European ports.

The usual means of prophylaxis is available to all and seem to be adequate. No special drives or programs for the control of venereal disease have ever been instituted since the cases are so sporadic that this approach is not practical.

VI. Graphic Summary and Analysis.

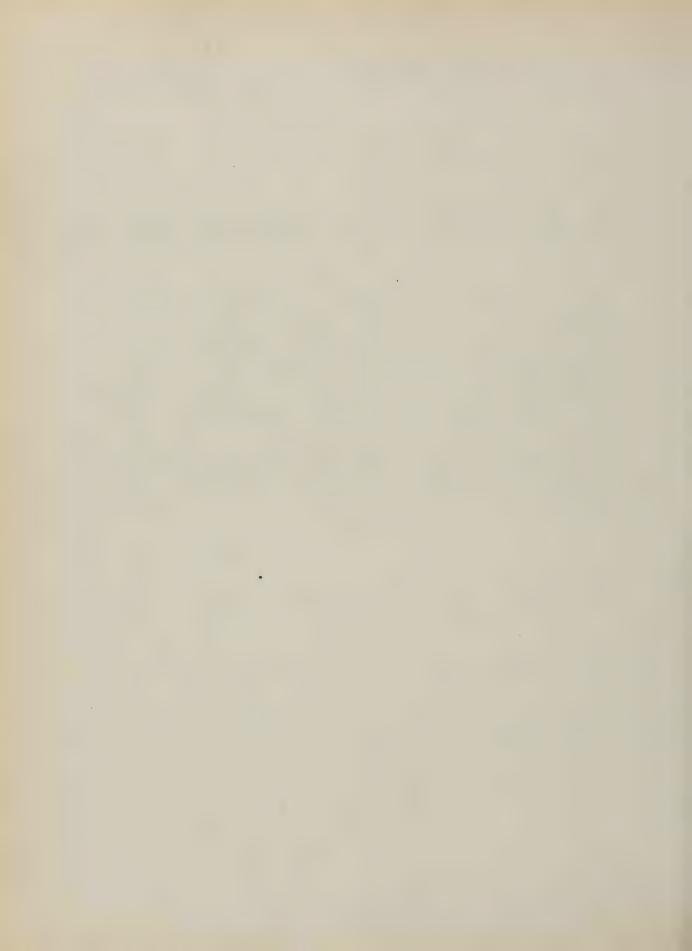
Attached to this report are graphs showing the noneffective rate, admission rate for upper respiratory diseases, and the venereal disease rate.

All three show a rapid decline from an initial high shortly after the first landing of troops and all show a constant decline to the present.

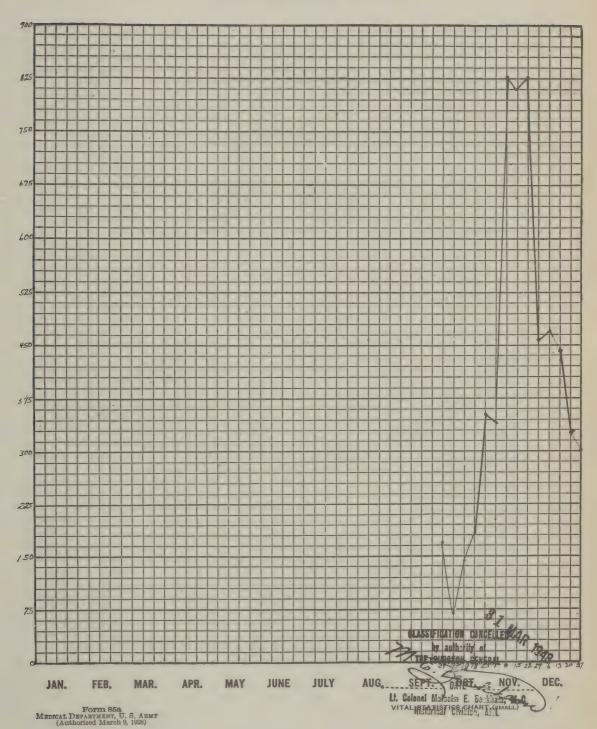
The high on the noneffective rate graph in June 1942, not reflected in the upper respiratory rate, represents admissions for jaundice resulting from yellow fever injections.

The only other peak of significance is December 1943 on both the upper respiratory disease graph and the admission rate graph which represents a rather mild upper respiratory epidemic which occurred coincident with one in the continental United States.

The change in the venereal disease graph noted in September 1944 and subsequently is of interest. While the troop strength started to decline at that time, the number of cases of venereal disease remained the same or even increased a little. The only explanation for this is that the number of local women infected by outside sources remained constant and each of them had the same number of contacts as before. These contacts were nonprofessional, for the most part, and the number represented satiety for the woman, rather than a reflection of the number of soldiers available. Therefore, the same number of soldiers would be infected each month as long as any reasonable number of troops remained. The valleys and peaks represent the result of the efforts of the local health authorities in removing the contacts for treatment and subsequent reinfection of the civilian population by the arrival of a ship from Europe.



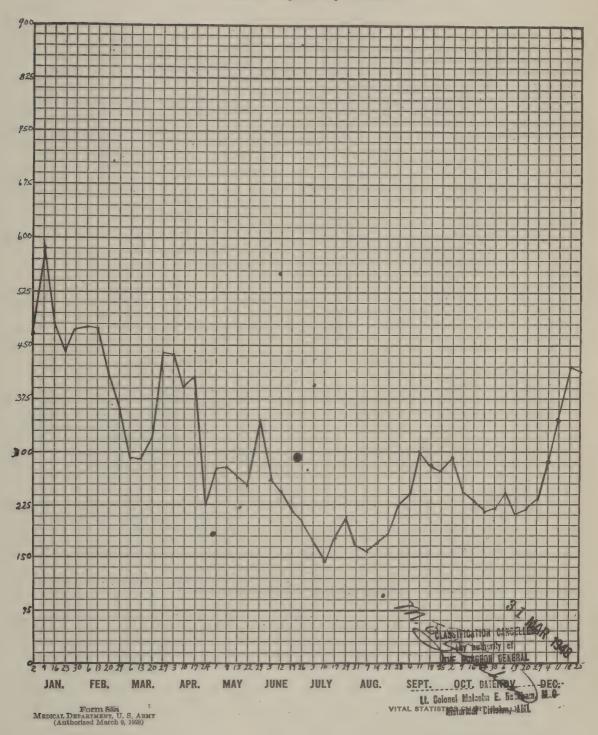
Per 1000 by weeks





1942

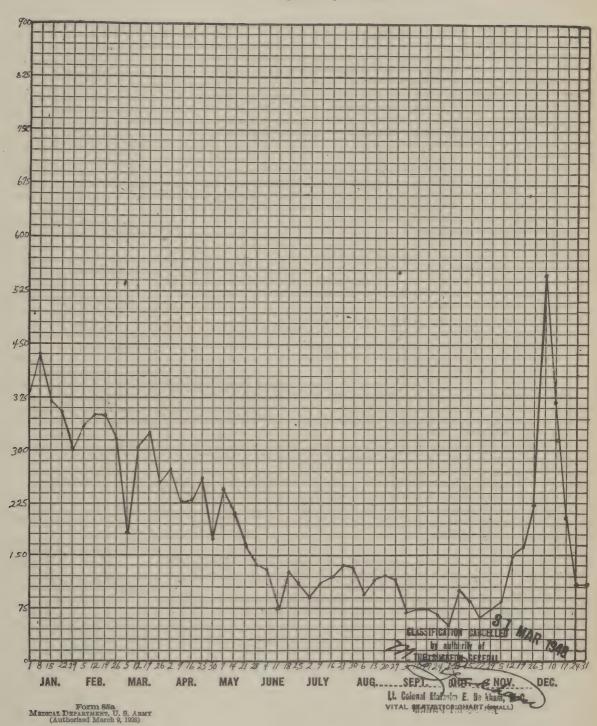
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1943

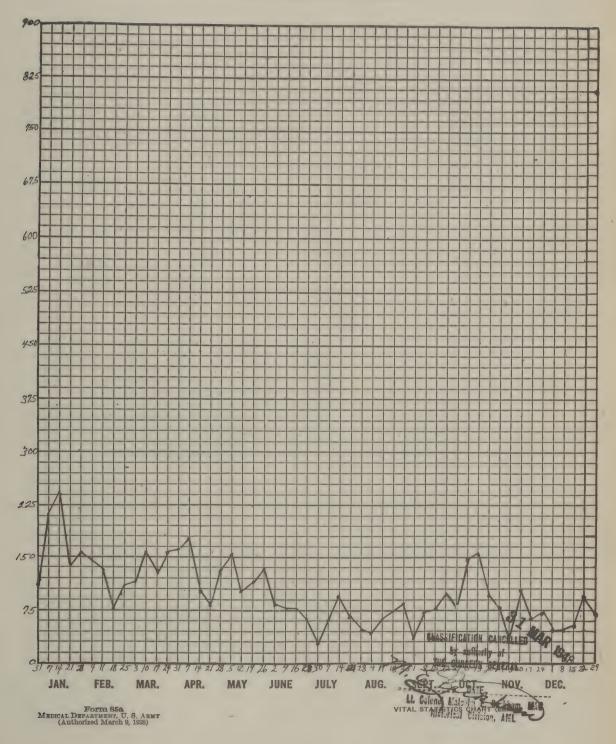
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1944

Per 1000 by Weeks



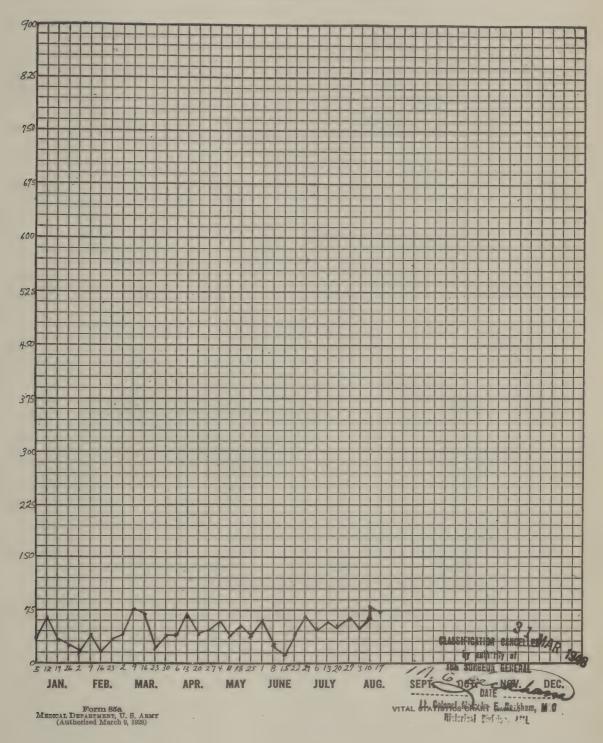


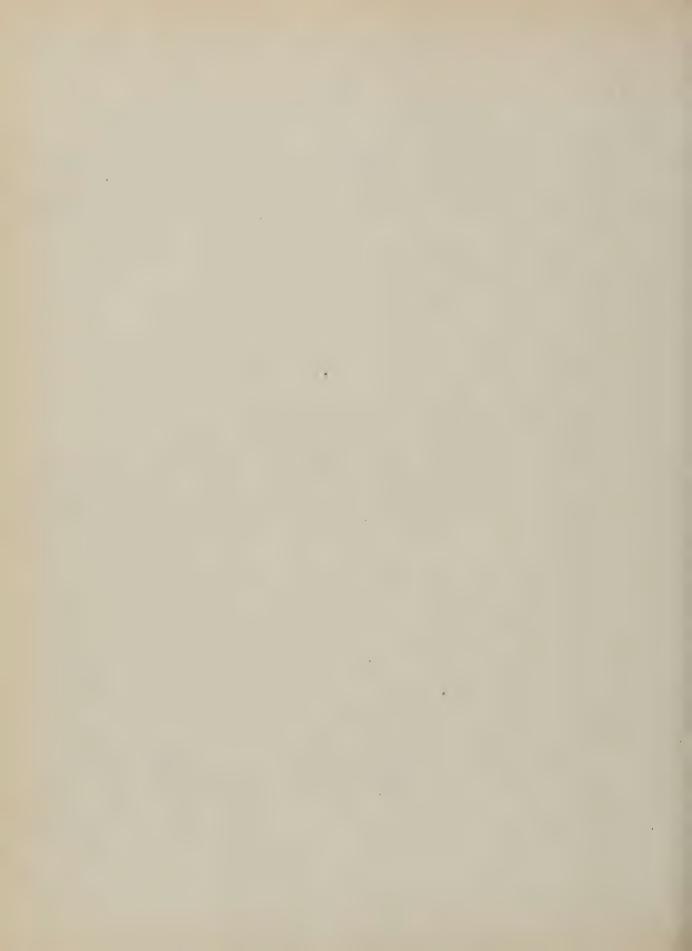
1945

ANNUAL ADMISSION RATE REPORT

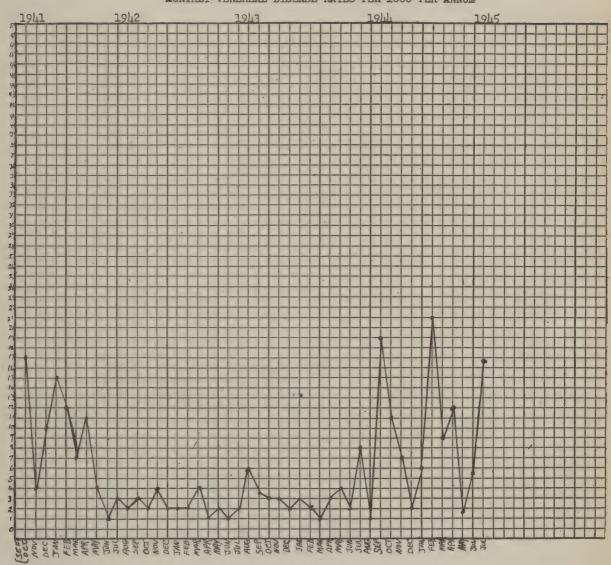
Per 1000 by Weeks

Common Respiratory Diseases





MONTHLY VENEREAL DISEASE RATES PER 1000 PER ANNUM

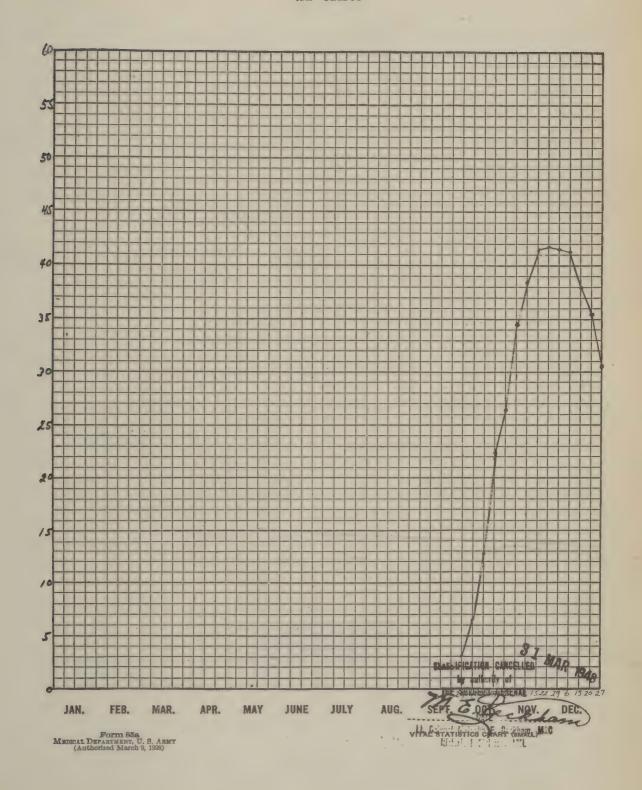




1941

ANNUAL MEAN NON-EFFECTIVE RATE

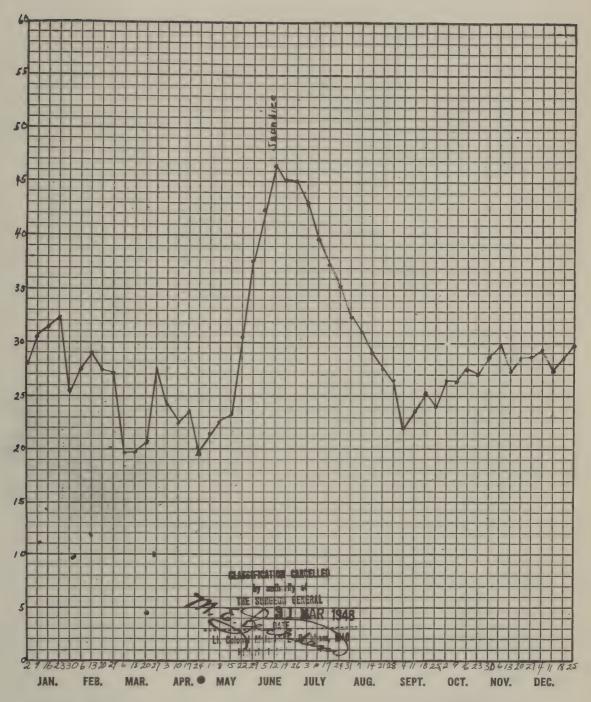
All Causes





ANNUAL LEAN NON-EFFECTIVE RATE

All Causes



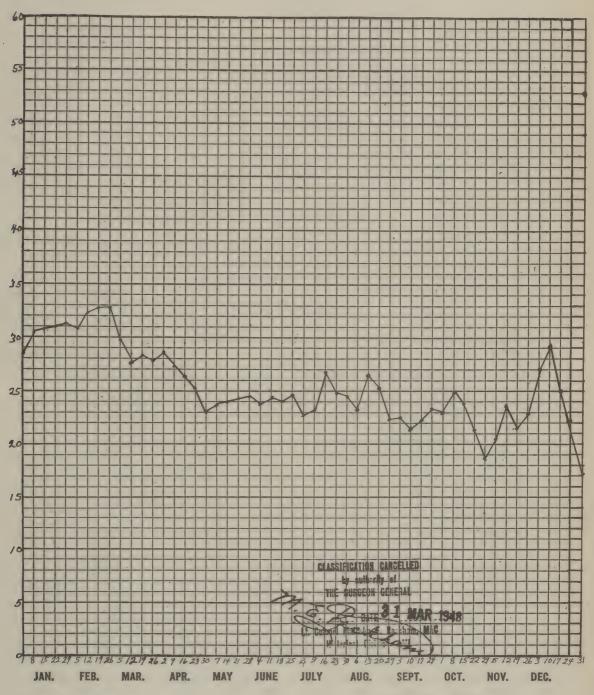
Form 85a Medical Department, U. S. Army (Authorized March 9, 1928) VITAL STATISTICS CHART (SMALL)



1943

ANNUAL MEAN NON-EFFECTIVE RATE

All Causes



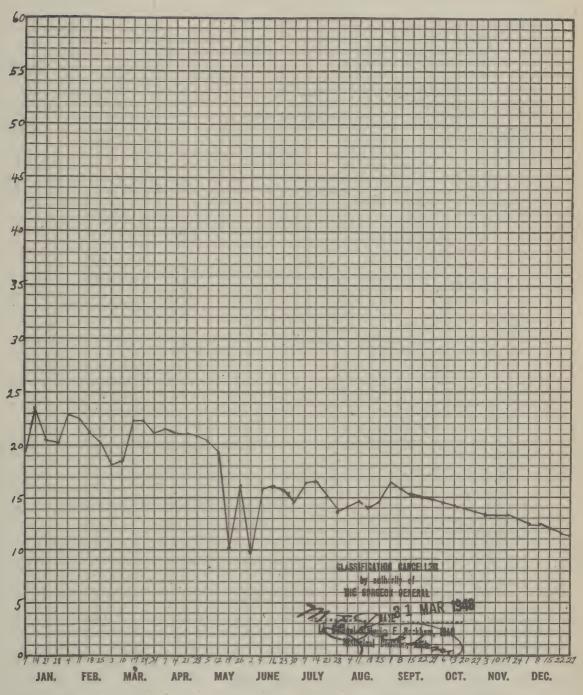
Form 85a MEDICAL DEPARTMENT, U. S. ARMY (Authorized March 9, 1928) VITAL STATISTICS CHART (SMALL)



1944

ANNUAL MEAN NON-EFFECTIVE RAIL

All Causes



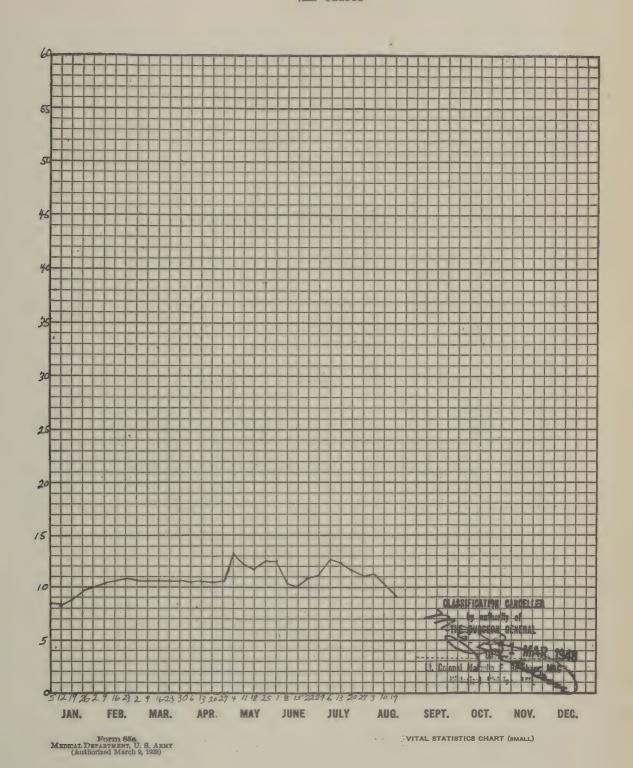
Form 85a Medical Department, U. S. Abmy (Authorized March 9, 1928) VITAL STATISTICS CHART (SMALL)



1945

ANNUAL MEAN NON-EFFECTIVE RAY

All Causes





HISTORY OF PREVENTIVE MEDICINE IN WORLD WAR II

NEWFOUNDLAND BASE COMMAND



HEADQUARTERS EASTERN DEFENSE COMMAND Governors Island, New York 4, N.Y.

314.7

28 July 1945.

(Surg) Subject:

History of Preventive Medicine in World War I

- : Commanding General, Newfoundland Base Command, A.P.O. 862, c/o PM, New York N.Y., (ATTN: Surgeon).
- It is desired that a history of preventive medicine activities for Newfoundland Base Command be prepared from the inception of the command through June 1945 and that the original and one (1) copy of this report be forwarded to this headquarters, attention Surgeon, not later than 1 September 1945.
- The following form will be used as an outline in the preparation of the history:

History of Preventive Medicine in the Newfoundland Base Command

Introductory Remarks:

Sanitation: II

- 1. Clothing
- 2. Housing
- 3. Food & Nutrition
- 4. Personal Hygiene
- 5. Water
- 6. Disposal of Waste
- Control of Insects
 - a. Flies
 - b. Mosquitoes
 - c. Ticks
 - d. Fleas
 - e. Cockroaches & Bedbugs
 - f. Other insects
- 8. Control of Rodents

III Sanitary Engineering:

IV Epidemiology:

- 1. Immunization
- Intestinal Infections
- 3. Infections of the Respiratory Tract and Infections Transmitted by Discharges from the Respiratory Tract
 - 4. Miscellaneous Infections
 - 5. Nutritional or Environmental Diseases

V Venereal Disease Control:

- 3. Additional sections may be added, if indicated, to include medical laboratories, occupational health, civil public health, Health Department activities or coordination, medical intelligence, nutrition and health education.
- 4. Extracts of instructions from The Surgeon General's Office basic letter to this headquarters, which may be of assistance in preparing the history are as follows:
- a. As the Historical Division of The Surgeon General's Office frequently emphasizes, proper documentation is of utmost importance in the preparation of a medical history. It is earnestly desired that not only will documentation be exhaustive but that supplementary material referable to preventive medicine in the field will be transmitted with the manuscript for preservation as future reference and teaching material.

b. Such a report should contain an account of the problems of preventive medicine that have been met, the difficulties that have been overcome, the expedients employed, the successes achieved and the failures that occurred and should be avoided in the future.

5. It is further desired that material pertaining to preventive medicine activities, which would be of value in maintaining a current history of preventive medicine for your base, be forwarded to this headquarters, in duplicate, every six months as of 30 December and 30 June.

BY COMMAND OF LIEUTENANT GENERAL GRUNERT:

/s/ W. F. Schubert
/t/ W. F. SCHUBERT,
Major, A.G.D.,
Asst. Adjutant General

· 314.7 (Surg)

lst Ind.

1 AUG ENT'D

HEADQUARTERS, NEWFOUNDLAND BASE COMMAND, U. S. ARMY, APO 862, c/o Postmaster, New York, N.Y. 6 SEP 1945

TO: Commanding General, Headquarters, Eastern Defense Command, Governors Island, New York 4, N. Y. (ATTN: Surgeon)

Basic communication complied with.

FOR THE COMMANDING GENERAL:

1 Incl:
Preventive Medicine NBC(dup)
REC'D SURG. O.

HQ EDC 12 SEP 1945

/s/ F. J. Mathews
/t/ F. J. MATHEWS
Captain, AGD
Adjutant General.

PREVENTIVE MEDICINE

IN THE

NEWFOUNDLAND BASE COMMAND



NEWFOUNDLAND BASE COMMAND

I INTRODUCTORY REMARKS

Newfoundland is the oldest of England's colonies. The island is about the size of the state of Virginia with an area of 42,734 square miles and an estimated population of 300,000. The island consists of a rugged, rolling to semi-mountainous terrain. Most of its population is centered in two localities, the Avalon Peninsula on the eastern side and the lower Humber River Valley on the west.

The well-fed, well-clothed and well-housed American soldier has not faired too badly through duty in Newfoundland from the health point of view, though he has been exposed to unsanitary conditions in the surrounding civilian communities. Though water is chlorinated at all posts, such is not the case in the nearby city of St. John's and communities. Consequently a certain amount of unpotable water is consumed by our troops. Eating places are limited to only those approved restaurants, though the food served by these restaurants does not undergo the inspection furnished food provided on the post. Then there are always a number of men who partake of meals in private homes. Soldiers have been constantly exposed to communicable diseases of the respiratory tract by mingling with the local population in crowded theatres, restaurants, churches, etc. Ventilation has always been poor and was even more so during the complete blackout.

Tuberculosis is a major health problem in Newfoundland. A survey was conducted at Fort McAndrew in August 1944 to include all civilian employees at that station. A total of six hundred and eighty-five fluoroscopic examinations was made (155 female and 530 male). Six of the females and twenty of the males were found to have reinfective type of pulmonary tuberculosis. This represents 3.80 percent of the total number examined. The purpose of this survey was twofold; case finding and removal of infected civilian personnel from the post. All civilian employees are given a physical examination and are x-rayed before they are employed. The physical examination also includes vaginal smears on all females and smallpox and typhoid inoculations are given all food handlers.

Very little has been done in Newfoundland toward immunization against communicable diseases. However, in the last few months a campaign to impress the Newfoundlanders of the seriousness of communicable diseases, and encourage immunization, has been undertaken by the Department of Public Health and Welfare.

II SANITATION

1. Clothing. The type and quantity of clothing available to the troops in Newfoundland has always been considered suitable and adequate. Temperatures seldom go below zero in the Ninter or above 80

degrees in the Summer, and perhaps only two or three times during the Winter does the temperature fall to minus two or four degrees Fahrenheit. July is generally the warmest month with the nights being cool. The winds in the Winter are normally northwest and over a twenty year period have averaged 11.22 miles per hour. During Spring, Summer and Autumn prevailing winds are southwest and average 8.2 miles per hour. It can be seen that Newfoundland is relatively a windy country. Average rainfall is about 43 inches which is approximately the same as in the New England States. There are frequent days of fog and mist and infrequent days of sunshine. The Summers are very short and there is little Autumn and little or no Spring. With such weather conditions, clothing issued has been of the Arctic type. Troops have been provided with Arctic field jackets, alpaca lined trousers, turtle-neck sweaters, Arctic overshoes and blucher high top boots. Wool filled comforters are available and in the hands of most troops, though they are not really necessary for troops housed in permanent barracks.

2. Housing

a. Fort Pepperrell. Quarters for United States Army troops in Newfoundland were first provided on the USS Edmund B. Alexander. Approximately 1,000 troops were quartered from the date of sailing 15 January 1941 to the latter part of May and the first week of June 1941. Some overcrowding was experienced onboard ship and ventilation was not too good. However, they were much more comfortable than in their subsequent quarters, which were tents, with a capacity of six men per tent. Troops were so quartered from June 1941 to November and December 1941 at a site named Camp Alexander. These tents were placed over a wooden framework with wooden floor and wooden sides approximately 4 feet high. They were heated by wood burning stoves. These tents, were, however, too warm when the fire was blazing in the stoves, or were too cold when the fire was out and the wind was sweeping through the cracks of the floor and walls. However, the troops survived with little or no ill affects, and in December 1941 the majority of the men in the St. John's Area were comfortably housed in permanent barracks at Fort Pepperrell. These barracks are considered to be ultra-modern having more than ample washroom and latrine facilities. There was a little overcrowding at times and when this did occur double-deck beds were employed or beds were separated by shelter halves and head to foot arrangement of beds was practiced.

b. Fort McAndrew. The first Army troops arrived at Fort McAndrew about the middle of January 1942. They were quartered in temporary barracks provided by the Area Engineers upon arrival. In March 1942 more troops were dispatched to that station and overcrowding resulted. The usual head to foot arrangement was practiced and beds were separated by shelter halves. These temporary barracks were difficult to clean and space allowances were below the minimum standard. However, by the end of 1942 the majority of the troops at this station were quartered in permanent barracks.

c. Harmon Field. The troops at Harmon Field were housed in wooden temporary cantonment barracks which were unsuited for garrison use. The number of buildings available upon their arrival was not sufficient, but this condition was alleviated with the construction of additional barracks. For a time housing facilities were adequate at this station but when Harmon Field was converted into a stepover for the northern air route from Europe, overcrowding was experienced due to the arrival and delays in departure of the many transit personnel. The housing facilities were further complicated when the evacuation scheme for patients of the European theatre was placed into effect. During the early part of 1945 billeting of permanent military, transit military and civilian personnel presented quite a problem and required constant study. Construction of H-type barracks for enlisted men was commenced immediately after approval was received but was occasionally interrupted due to the lack of material. Emergency billeting for large numbers of passengers and crews detained at this station was made adequate by the erection of tentage and by the adoption of hangar space for quarters. An air evacuation building was provided for by the conversion of a lubricant warehouse. This provided accommodation for approximately one hundred patients. In May of 1945 emergency billeting for approximately five hundred had been furnished in hangar number three which was then being provided with latrine facilities. In June 1945 transit activity was still increasing and additional requirements for more housing facilities was being made as rapidly as labor and materials became available for the construction of additional barracks, etc. As of June 1945 the following housing projects were under construction, had been finished or plans were being submitted as indicated:

Project	Capacity	Phase of Construction
H-type Barracks	240	95% Complete
Tentage	216	Occupied
Tentage	144	Preject submitted
Hanger 3 Billeting	500	Occupied
Latrine Building for		
Hangar 3 Billeting		95% Complete
Air Evacuation Building	100	Occupied
Stout Huts (Relocated)	72	25% Complete
3 H-type Barracks	240 ea.	Project submitted.

d. Gander Field. In May of 1941 the first contingent of treeps for the United States Airport at Gander, Newfoundland, arrived at their new base and found available for use fairly comfortable temperary barracks which were heated by force draught heaters. These buildings were built by the Atlas Construction Company for the Royal Canadian Air Force. Double-deck beds were set up Canadian style and were readily occupied. Overcrowding existed but according to Canadian standards of 116 men in double-decker bunks, which allowed 283 cubic feet of air space per man, there was no overcrowding.

According to United States Army standards as set forth in Field Manual 21-10, only 47 men should have been housed in the space allotted the 116 men. However, by the end of 1941 the overcrowding was alleviated by the increase in the number of buildings.

3 Food and Nutrition

a. Subsistence. Upon arrival of United States troops in Newfoundland in January 1941 the procurement of food was an important problem, since the Army, so the speak, "travels on its stomach". Sufficient supply of rations "A" and "C" were brought along and arrangements were made in advance to keep the supply of food rolling into Newfoundland from the United States by weekly supply ships. After facilities for storage of food products was obtained locally, and temporary construction of Camp Alexander completed, a surplus supply of canned products was built up gradually. The inspection of the food supply here during 1941 was of a sanitary nature at the time of issue to troops since most of the food was obtained from other Government sources and had been previously inspected. In 1942 the amount of work in the food inspection field was increased due to the increase in the size of the base and method of purchase by the Subsistence Depot. A large percentage of fresh frozen meats and meat products, eggs, butter and some vegetables were purchased from Canadian sources through a cooperative agreement between the United States and Canada. United States Army took possession of the products on arrival in Newfoundland and the Veterinary inspection therefore included a grade and quality inspection as well as a sanitary inspection. All meats purchased in this manner were inspected and passed by the Canadian Department of Agriculture and approved by the United States Department of Agriculture, Bureau of Animal Industry, for importation into the United States. Some foods continued to be furnished from supply depots in the United States, such as canned goods, boneless beef, hams, bacon, butter, cheese and fresh fruits and vegetables. The Base Subsistence Depot continued this food procurement setup until January 1945 at which time the Naval Supply Base at Argentia and the Army Subsistence Depot agreed upon requisitioning their supplies together from the Boston Port of Embarkation. At the present time a monthly supply ship unloads its cargo at the Navy Docks at Argentia and it is stored in the large storage buildings there. From here the subsistence items are shipped by rail, truck and boat to the other stations on the island. At the present time most of the supply problems have been overcome and the distribution of food to the troops on the Island, and the supply to the Naval Base and the ships in the North Atlantic, is operating in an efficient manner with a negligible loss and spoilage.

There is an abundant source of fresh fish in this area but the sanitary conditions of the local processing and filleting plants prohibit the purchase of dressed and dried fish, and we are forced to obtain only fresh salmon, lobster and codfish direct from the boats and clean and prepare same in the messes. It would be very easy to have a year round supply rather than a seasonal supply if a sharp freezing unit and processing plant could be installed and operated under sanitary conditions by the Army or Navy here on the Island. Such a plant would pay for itself in a short time and save the Army and Navy much money.

Early in 1941 the storage facilities were at a premium, with the result that much of the canned products were stored outside under tents and tarpaulins. Cold storage facilities were hard to find outside of that on the troop ship USS Edmund B. Alexander, anchored in St. John's harbour. This necessitated weekly supply ships to furnish sufficient fresh meats, fruits and vegetables to the troops. Later on two rooms were obtained at Harvey's Cold Storage and used to the limit for frozen products. In 1942 the Cold Storage Plants at Fort Pepperrell and Fort McAndrew were put in operation and temporary structures constructed at Harmon Field and Gander. With said cold storage units in operation at the various stations, and two large storage rooms at Harvey's Cold Storage in St. John's, our losses from spoilage, due to lack of refrigeration, were held at a minimum, and a safe product was assured the troops.

The outposts along the coast were furnished with large refrigerators and periodic shipments were made by the P-103 boat, which has a small refrigerator room, to the various outposts. Early in 1944 one room at Harvey's Cold Storage was released and late in 1944 the second one. At present the enormous cold storage space at the Argentia Naval Base is being utilized by both the Army and Navy and can easily handle the existing needs of both. The post cold storage plants are adequate and well planned, consisting of an egg room, vegetable room, zero room and two chill rooms where the daily issues are broken down and stored. The sanitary conditions of these plants are excellent and the only trouble experienced is the formation of mold on the walls in the vegetable rooms. This is removed periodically with sodium hypochlorite solution, hot water and steam. The various barracks and messes have two large refrigerator units for storage after quartermaster issue. The Commissaries have two refrigerator units and the Post Exchange has two zero units, one of which is used for storing ice cream.

The biggest problem here on the Island is transportation. On receipt of the produce from the Boston Port much damage to the crates, etc., has already occurred from rough handling in loading and unloading, and improper storage during the five to seven day trip to the Navy base at Argentia. This same produce must be

stored again and reshipped by boat, rail or truck to the other stations and in turn handled again at issue and shipment to the various outposts. Consequently after several handlings a percentage of loss is bound to occur. This is true with fruit and vegetables packaged in the thin wooden crates, etc. They just cannot stand the handling and were never packed for a long trip overseas. The meat products in heavy specified boxes, packed for overseas shipment, usually arrive in good condition. Then there is a group of vegetables and fruits which are called perishable items and are impossible to get to their destination without a rather large loss from natural deterioration, spoilage, rough handling and improper crating. From 1941 to the present time it is still a problem and little has been done to improve the condition. In the first place, for example, the maximum storage period for lettuce, tomatoes and celery is ten days, and by the time said vegetables reach the various stations after shipment from Boston the storage period is up and by all logic little should still be eatable. So with this type perishable we have to be satisfied with what we can salvage and this is possible only through proper crating, cautious handling and rapid transportation.

When we were receiving most of our frozen meat from Canada we had some trouble with the products being thawed out upon arrival at the docks in St. John's. Sometimes it was the fault of the plant, sometimes the fault of the Canadian railway and storage at the docks in Canada awaiting transportation to Newfoundland, or still further faulty refrigeration on the commercial ships. Regardless of the responsibility all these shipments were inspected by the Veterinary Corps as soon as it was placed on the dock and if frozen solid it was taken to our storage and there given a thorough inspection for quality and grade. However, if the shipment was thawed to the point where damage and spoilage had occurred or would occur with additional storage. the entire shipment was rejected and turned over to the packing company representative in St. John's without monetary loss to the United States Army. In other words the products were rejected unless they were of good quality and frozen solidly.

After the subsistence has been received from the United States or Canada the transportation about the Island is still a major problem. The narrow gauge Newfoundland railway is the only means of transportation from St. John's, on the east coast of the Island, to Port aux Basques, on the west coast, with a branch to Argentia, to the south, and another one north to Grand Falls, etc. The schedule is slow and can never be depended upon besides operating in an independent manner. They had only a few refrigerator cars and few good box cars during 1942, 1943 and 1944, but obtained several new modern refrigerator and box cars in 1945. Many times we were forced to ship perishables in box cars during both Summer

and Winter with the result that some loss was sustained from freezing in the Winter and spoiling in the Summer. In other words transportation by rail was far from dependable and one had to take chances with the changeable weather conditions that exist in this area.

In 1942 the United States Army built a new road from Argentia to Holyrood thus making motor transportation possible from St. John's to Fort McAndrew and the Naval Base at Argentia. Much of our perishable supplies were transported back and forth over this road in refrigerator trucks rather than by means of the Newfoundland railway since it was much quicker and less expensive. Some use is made of the P-103 boat which runs between St. John's and the various stations and outposts on the coast. During late 1944 and early 1945 transportation of perishable items was attempted by air from Boston as well as some distribution on the Island by air. This type of transportation is fast but expensive and is controlled entirely by weather conditions.

Most of our food problems and rejections were the result of poor transportation, improper packing and lack of refrigeration. After the meat products were inspected and accepted by the Veterinary Corps and stored under ideal conditions there was little loss (503 pounds) at Fort Pepperrell during 1944. We had one outbreak of food poisoning, diagnosed as staphylococcus poisoning and caused by an issue of frozen chickens which the mess sergeant held in the refrigerator at 45 degrees for one week before serving. The result and responsibility was obvious.

b. Milk Supply. On arrival of the troops in St. John's none of the dairies could pass a sanitary inspection acceptable to the Army's standards and few of the cattle had been tuberculin or tested for Bang's disease. After many conferences and discussions by the Army Veterinarians with the Newfoundland Government, Newfoundland Butter Company and others, a quality of milk, meeting Army standards, was finally agreed upon and obtained. This milk was known as "National Mark" milk and was produced by eight dairies in the vicinity of St. John's. The dairymen improved their buildings, purchased new equipment, tested their cattle for tuberculosis and Bang's disease and cooperated to the fullest extent. In July 1941 this "National Mark" milk was made available to the troops in this area.

Later an attempt was made to branch out and supply fresh milk to Fort McAndrew, 90 miles south of St. John's. The Newfoundland railway was used as a means of transportation but this venture did not prove itself. The Department of Natural Resources and the Army Veterinarians made a survey of the milk supply in the Branch and Cape Shore area, tested a representative number of cattle for tuberculosis and Bang's disease and attempted to

establish a milk supply, but this also failed. Fort McAndrew then purchased a "mechanical cow" and has successfully operated it to the present time.

An attempt was also made to secure a fresh milk supply for the United States Airport at Gander. The herd of cattle in question was located about 50 miles distant from Grand Falls and owned by the Anglo-Newfoundland Development Company, a large paper concern. The dairy met Army sanitary requirements but the supply was insufficient and the only means of transportation was the Newfoundland railway. Consequently they purchased a "mechanical cow" but did not gain much success in operating it. At the same time "National Mark" milk was being shipped to Gander for hospital use only.

This overall setup for milk at the above-mentioned Army installations existed until December of 1943, at which time the Commission Government of Newfoundland cut off our supply completely. This was due to an acute feed shortage and indirectly to a shortage of tinned milk on the Island. It was impossible to buy dairy or poultry feed and dairymen even resorted to feeding flour to the cows. This shortage existed during the Spring of 1944 and was due to feed shortages in the United States and Canada and also to transportation since most feeds are imported.

During this time Fort Pepperrell had to resort to powdered milk, mixing it by hand in the messes. A "mechanical cow" for Fort Pepperrell was considered but in investigating the availability of the ingredients (skimmed milk powder, whole milk powder and unsalted butter) in sufficient quantity to supply three Army installations, it was not considered profitable. The Commission Government was then persuaded to permit the Newfoundland Butter Company to supply the United States Army with their surplus milk and in July 1944 we again started receiving a sufficient supply of fresh milk for Fort Pepperrell. In the Spring of 1945 we again supplied Gander Airport with all they needed, making delivery by the Newfoundland express on Monday, Wednesday and Thursday.

Since the United States Navy at Argentia and the Army Subsistence depot have been cooperating in obtaining their supplies of frozen meats, canned products and fresh fruits and vegetables from the United States, the services of the Veterinary Corps have been extended to the Navy. The Navy has at present a "mechanical cow" and reconstitutes milk for issue at the base and to the ships, but they also wished to secure a sanitary fresh milk supply. On investigation a dairy was found about 40 miles from Argentia which could meet Army standards. The dairy was inspected and the herd, on being tested for tuberculosis, Bang's disease and mastitis, was found to be negative. This raw milk is shipped by rail to the Navy Base and pasteurized in the "mechanical cow".

This source, with additions to the herd, will be available to Fort McAndrew if and when they decide to use fresh milk instead of reconstituted milk.

The raw fresh milk in the St. John's Area is collected and delivered to the Newfoundland Butter Company where it is processed, pasteurized and bottled separately from their ordinary grade milk; the milk for the Army being processed first, bottled and then delivered to the post. They also make delivery of this milk to the officers' quarters and families living on the post.

From observation and information received from local sources the incidence of tuberculosis in cattle on the Island is not too great. This is especially true in the larger aggressive dairies since most of their cattle and their replacements are purchased in Canada and must be tested for tuberculosis and Bang's disease before entrance into Newfoundland. Practically all the fresh butter and various types of cheese are received from the United States and we have had negligible trouble with these items. None of the ice cream plants in Newfoundland meet Army standards for quality and sanitation, but this necessary item is supplied to the troops by the Post Exchanges from ice cream mix obtained from the United States.

4. Personal Hygiene. Hygienic conditions among troops stationed here has always been excellent. The Army Exchange Service has provided adequate toilet articles at all times. Laundry service is excellent and hot water plentiful. All troops of this command have viewed personal hygiene films and in addition are repeatedly provided instruction by their unit commanders.

5. Water.

a. Fort Pepperrell. The site chosen for Fort Pepperrell is situated on the north shore of Quidi Vidi Lake and the water supply comes from the same source as that supplying the city of St. John's. This source is Winsor Lake which is located six miles west and slightly north of the city. This lake is springfed and also serves as a collecting basin for a drainage area of approximately 4-1/2 square miles. It is 510 feet above sea level and the water is taken from a point 600 feet out in the lake and at a depth of 18 feet. This is brought through a 36 inch steel pipe to a valve chamber, thence through 4,000 feet of 4 x 4 feet of concrete conduit to four wire mesh screens and thence through 8,000 feet of 36 inch and 32 inch pipe to a venturi meter lever which automatically registers the flow. Two pipes, a 20 inch and a 16 inch, both castiron, bring the water to the city. The inhabitants have been moved from the lake area and fishing and swimming are prohibited by law as aids to prevent pollution of the water supply. A chemical analysis made October 1942 is as follows: (Results expressed in ppm.)

Free ammonia	Nil
Albuminoid ammonia	0.07
Inorganic solids	16
Organic solids	15
Hardness equivalent to	· 14.8 CaCO ₂
Chlorides	12
Dissolved oxygen	8.08
CO ₂	1.25
pH	6.1 (goes as low as 5.0)
Iron	0.2

The supply for Fort Pepperrell is derived by means of a 12 inch pipe branching off from the 16 inch main. This main fans out at Fort Pepperrell into a complete grid system with no dead ends. Gate valves are so located that in the event of operating difficulties comparatively small sections of the system can be shut off without affecting the rest of the system. The city pressure of 115 to 120 pounds per square inch is reduced to 90 pounds per square inch is reduced to 90 pounds per square inch at the master meter house. This reduced pressure is further reduced by valves in individual buildings. A pressure of 90 pounds per square inch has been found to be the correct operating pressure for the altitude valve located at the 500,000 gallon storage tank. At the present time there is a complete change of the water in the tank every four days. The Municipal water supply receives no treatment prior to its delivery to the post. A post chlorinator was installed during the early part of 1942. An initial dosage of one part per million of cholorine provides a residual varying from .1 to .6 parts per million at points most distant from the point of application. The fluctuation of the residual is due to a storage tank which floats on the line. The contact period from the chlorination to the first possible consumer is between 15 and 20 minutes. Medical Department supervision of the water supply is conducted by a bacteriological laboratory at the 308th Station Hospital. Daily bacteriological tests are made of the water before and after chlorination. In addition daily chlorine residual tests are made at points most distant from the point of application of the chlorine.

Late in the year 1943 considerable agitation by the residents of St. John's brought action from the city council to provide some method of sterilization. It was not, however, until this year that final approval for equipment and the necessary export papers were obtained and the equipment purchased. It was decided by the consulting Engineer to chlorinate the local supply at its source and to use Wallace and Tiernan automatic chlorination equipment for this purpose. The equipment was finally received by the city and installed, but due to an error in ordering the electric motor, which will operate the booster pump, the equipment has not been used. Arrangements for the shipment of the new motor have recently been completed and it is expected that chlorination of the

St. John's water supply will begin in the near future. There is some question as to whether Fort Pepperrell will need to continue its present policy of water chlorination once the city chlorination system begins to function. It is rather doubtful, considering the condition of the St. John's distribution system, that the required chlorine residual will be maintained by the time the water has reached the military reservation. It is quite probable that a booster dose of chlorine will be required at Fort Pepperrell to maintain the C.4 parts per million residual which the Army requires throughout its distribution system.

In the Fort Pepperrell area there are numerous outposts which are garrisoned and each outpost presented a special problem in the supplying of potable water to the troops. The water supply problems of these outposts will be discussed under separate headings.

(1) (ed Cliff.) The water for this outpost is obtained from a small stream which receives surface water from a comparatively small drainage area. The quantity of water in the catchment area varies considerably; during periods of prolonged dry weather it becomes necessary to institute a water conservation program. Since the water comes from such an open drainage area there is an ever present threat of contamination. Several samples of water taken from the pool behind the dam have shown the water to be contaminated. Prior to April 1943 chlorination was attempted with a temporary installation. However, during that month a heavy duty midget chlor-c-feeder was installed. Satisfactory results were obtained in spite of the fact that the machine is working at border line pressures. In addition to the chlorination treatment a pressure filter was installed in November 1943. This pressure filter is manufactured by Graver Tank and Manufacture Company and uses active charcoal for the infiltrating medium. The water system consists of two electrically driven pumps, each having a capacity of 40 gallons per minute. water was driven from a pool behind a small dam and pumped through the pressure filter followed by chlorination to a 25,000 gallon wooden tank located on a high point above the outpost. The water enters at the top of the tank and is driven from the bottom of the tank, thus permitting a sufficient contact period for the chlorination. Considerable sediment collects in the stilling pool behind the dam after heavy rains, resulting in some of this sediment being pumped into

the distribution system. This has been corrected by cleaning the sediment out of the pool immediately after a heavy rain.

- (2) Cape Spear. One of the Air Warning Radar Stations was located at Cape Spear. A small stream was dammed to form a settling basin. The quantity of water has always been sufficient and at no time has it been necessary to inaugurate a water conservation program. This water, because of the source, has a reddish-brown colour and a fairly high chlorine demand. The water system is a joint installation operated by the Canadians. The original system was installed by the Canadians and consisted of one electrically driven horizontal centrifugal pump having a capacity of 2,500 gallons per hour with a gas-operated diaphragm pump as a standby unit. The main taking the water to the outpost and two 5,000 gallon wooden tanks floated on the line. While in use by the Canadians the water was not chlorinated. When American troops began to occupy this outpost the distribution system was tapped to supply them with water. A 50,000 gallon covered concrete tank was installed to float on the line. However, until chlorination was inaugurated by the American forces this water system was not used for drinking and cooking purposes. All drinking water was transported from Fort Pepperrell. After some discussion and delays, the Canadians installed a Wallace and Tiernan hypochlorite feeder in March 1943. Some mechanical difficulties were experienced with this chlorinator and it was replaced by a temporary installation consisting of a barrel site glass and tubing which admirably served the purpose. In the Summer of 1943 some piping changes were made to the distribution system. At the same time the Canadians removed their two 5,000 gallon tanks so that the American installed concrete tank served both forces.
- (3) Snelgrove. Of the outposts which derive their drinking water locally the supply for this outpost is the best. The water is taken from New Found Pond which is part of the watershed in the St. John's water supply. The water is clear and colourless with a comparatively low chlorine demand. The water system consists of two Nova electrically driven piston pumps with a temporary chlorinator on the suction side of the pumps, a wooden storage tank and distribution piping.

- (4) Signal Hill. A regulating reservoir of the St.
 John's water distribution system is located adjacent to this outpost. The main source of this reservoir is tapped and the water is allowed to fill a wet well. The water is then pumped by means of an electrically driven vertical centrifuge having a capacity of 2,500 gallons per hour. A ten thousand gallon wooden tank which floats on the line serves as a reservoir. Until August 1943 it was necessary to draw water from Fort Pepperrell because a chlorinator was not available. Numerous tests showed the water to be bacteriologically impotable. A heavy duty midget chlor-o-feeder was installed which has provided potable water ever since its installation.
- (5) <u>Other Outposts</u>. The smaller outposts garrisoned by Infantry troops obtained water from dug wells or other sources of a questionable nature. This water was used only for cleaning purposes and flushing out latrines. Drinking water was carried in 5 gallon containers to these outposts daily from Fort Pepperrell.

b. Fort McAndrew. The source of water at Fort McAndrew is Clarke's Pond which has an elevation of 139 feet. It is about one and a half miles southeast of the outer reservation. The lake is one-tenth of a square mile in area with a depth running to 24 feet. The watershed is an estimated two square miles. There is no permanent habitation in the watershed area. Clarke's Pond drains into Karkin's Pond, which serves as a water supply for the village of Placentia. Routine chemical analyses have shown the following average characteristics of this water:

pH 7.0 ppm
Total alkalinity19.6 ppm
Chlorides 45.8 ppm
Total hardness 28.8 ppm

Additional source of water developed by the United States Navy is Argentia Pond with an elevation of about 270 feet, the water from which flows by gravity to the Fort McAndrew distribution system into the northwest portion of the reservation. The water distribution system is as follows:

(1) Pump Station. The 16-inch water intake (Elevation 131.33') extends 70 feet from the shore line. Two vertical turbine pumps of 1500 gpm capacity at 210 head will discharge water to a 12-inch diameter

discharge line. These pumps are driven by electric motors with one gasoline engine as standby for one of the pumps. A venturimeter is on the discharge line to record, indicate and integrate the flow. The differential pressure of the venturi-meter was used to control the flow of chlorine.

- (2) Storage and Distribution. A single 14-inch line carries water about a mile to the reservation at Shag Pond where a distribution loop is made around the pond. A covered concrete storage tank of 500,000 gallons capacity is designed to float on the distribution system (Elevation 250') at a point about one-half mile distant from the pumping station. The United States Navy area is served from the distribution system by two lines (6" and 12") across the causeway. There is a meter and check valve which may be by-passed in emergency, permitting the Navy to pump from its storage tanks into the Army distribution system. The Naval area has three booster pump stations and nine 500,000 gallon storage tanks below hydraulic gradient. Distribution lines have been disinfected before being placed into service.
- (3) Treatment. A Wallace and Tiernan automatic (MASV-M) vacuum type solution feed chlorinator has been installed. This chlorinator has a maximum capacity of 40 pounds per day. Orifices of 5 and 12 pounds per day capacity are also available. Chlorine is injected into the suction line of the pumps. Water under pressure for operation of the chlorinator is available at the discharge side of the pump. A one and one-quarter inch service line on the discharge side of the pump, after chlorina-. tion, leads to a service sink and is used for determining chlorine residual. Chlorine is provided in 150-pound cylinders and a scale is available for weighing the chlorine cylinder as chlorine is applied. Provision is made for an additional chlorinator when necessary.
- (4) A Proportioneers manual control motor driven hypochlorinator was installed on the Argentia Pond line by the United States Navy. There is no meter on this line for determining the rate of flow of water from Argentia Pond. With sufficient water in the pond, the flow in this line is relatively constant.

In the Summer of 1944 numerous complaints were received in that the water at Fort McAndrew had developed an odd taste and odor. It was found that a high chlorine dose had been necessary to maintain the residual required by War Department directives. In order to obtain this high dosage it had been necessary to increase the strength of the chlorine solution to a point which is detrimental to solution feed equipment. A 5% solution was being used for equipment which was for only 1%. The matter was discussed with the Base Sanitary Officer and the Fort McAndrew Area Engineer and plans were made to provide for the use of chlorine gas at the intake, and a solution feed with a weak solution as a booster to take care of fluctuations in the flow. This plan took care of the equipment but it did not answer the problem of taste and odor. Microscopic examination of a sample from Argentia Pond, which as stated before connects with the main supply derived from Clarke's Pond, revealed the presence of algae and protozoa. Copper sulphate was added to the reservoir as a method of combatting this condition. Results obtained by the use of copper sulphate were excellent. Odor and taste were reduced to only a trace and a chlorine residual could be maintained in the distribution system.

Several outposts in the Fort McAndrew area have various water supply problems and they are presented under separate headings:

- (1) St. Bride's. The water supply at this station is derived from a small stream which flows rapidly from an area covered with heavy brush. A small regular dam diverts the water through a 6-inch line to a concrete suction well. An 8-inch pipe back to the stream allows the water to flow through the well. A 2-inch suction line leads to the pump house housing gasoline reciprocating plunger pumps which discharge water to the distribution system. All surplus water flows to a covered wooden elevated storage tank of 5,000-gallon capacity.
- (2) Black Point. The water supply from this installation is derived from a very small stream about 150 feet from the barracks. The water is diverted into a covered rock lime well about 10 feet in diameter and 3 feet deep. A 2-inch line carries water by gravity to the barrack buildings.
- (3) Point Verde. There is no water supply at this installation which will provide water fit to drink. A rain water cistern equipped with a

pitcher pump is used to provide water for dishwashing. Blackish water is pumped up from a rather stagnant pond separated from the sea by a narrow strip of land and this water is used for flushing toilets, washing and so forth. The water for drinking purposes is hauled to this installation from Fort McAndrew in ten gallon milk cans.

c. Harmon Field. The source of water for Harmon Field is Noel's Pond with an elevation of 72-1/2 feet. The lake is situated about one and a half miles northwest of the reservation. The lake, one square mile in area and ranging in depth to 170 feet, drains a watershed ringed with a high ridge consisting of many smaller ponds. There were a few habitations in the area but these were removed and the entire watershed became part of the reservation. A 16-inch water intake extends several feet from the bank some 12 feet below lake level. A permanent pumping system consists of two motor driven vertical turbine pumps having a rate of capacity of 1,000 gallons per minute, a venturi type to which is attached a flow meter with a recording and intergrading device and a chlorinator. Before the water passes through the pumps chlorine is added by means of a Wallace and Tiernan chlorinator. The chlorinator has a capacity of 40 pounds of chlorine per day. Tests conducted in October 1942 revealed that the water had a high chlorine demand which would not be satisfied even after two hours contact with chlorine. This was probably due to a high organic condition of the water. It was believed that a dosage of from four to five parts per million, which would allow free chlorine intake of the water for at least one hour, would provide satisfactory disinfection.

In September 1944 the surgeon at that station made a recommendation that the amount of chlorine injected into the water supply be gradually increased to provide a residual of at least .4 ppm at points of consumption at all times. The Base Sanitary Corps Officer, having made a study of the Harmon Field water supply system, reported that this request could not be complied with because of the type of construction of the water system. During the pumping operation the water not used by the base is stored in a covered concrete storage tank. As soon as the water in the tank has reached a prearranged elevation the pump is cut out of service. The water is then drawn from the tank. It has been found that whenever an attempt is made to add sufficient chlorine to maintain a residual of .4 ppm, at all times at all points throughout the system, an excessive residual is present during pumping operation. The high residual during pumping periods gives the water an obnoxious chlorine taste. The Base Sanitary Officer recommended the installation of an ammoniator which would work in conjuction with the chlorinator as a solution to this problem. The combination of the chlorine and ammonia would

give a slower acting chloramine which would hold the residual longer and eliminate the offensive taste of the high chlorine residual. At the time of this writing it is not known whether an ammoniator has been installed at this station.

d. Gander Field. The water supply up to 31 December 1941 was inadequate. During May 1941, upon arrival of United States forces, water was derived from several deep wells. At that time no preparation was considered necessary by the Royal Canadian Air Force or their contractor who was constructing the Gander. In a short time this water became inadequate for the growing population and that which did exist became contaminated by improperly disposed feces by the Newfoundland laborers. A new source was provided from Dead Man's Pond, which is situated about two miles from the Airport, during August 1941 when the original supply was definitely inadequate and contaminated. Chlorination of this water was supposedly done by the Canadian contractors but no evidence thereof could be found and furthermore there was an inadequate amount of calcium hypochlorite on hand to last any time. The water continued to show evidence of fecal contamination. During the last week in September 1941, on joint pressure from both the Royal Canadian Air Force Surgeon and the United Stated Army Air Base Surgeon, a Wallace and Tiernan vacuum control chlorinator was installed for chlorination of water prior to storage in two 65,000 gallon wooden tanks. In this system the water was further chlorinated after leaving the storage tanks by 7-1/2 pounds of hypochlorite daily instilled with an automatic Wallace and Tiernan hypochlorite installator. Several cases of diarrhea occurred during October and it was found that all chlorination had been stopped a few days prior to that time without proper authority. All water was then boiled prior to use until the chlorinator could be placed in proper operation again.

Early in 1942 the permanent water supply system, having Gander Lake as its source of water, had been started. Gander Lake is situated about one and one-half miles south of the Airport and 350 feet lower. The supply of this extremely large lake is inexhaustible. There is very little human habitation for miles near its shores hor does it drain in large inhabitated areas. water system is under the control of the Canadian forces. The water is chlorinated with liquid chlorine before it reaches a 600,000 gallon reservoir and in addition calcium hypochlorite is added to the water as it leaves the reservoir. Bacteriological tests of the water have repeatedly been negative. Recently it was noted that there has been a lack of chlorine residual in the water when it arrives on the base. However, the water presents no evidence of contamination. This deficiency is at present under discussion with the United States Army Engineer and the Canadian forces.

6. Disposal of Waste.

a. Fort Pepperrell. The Post Incinerator is of the enclosed high temperature type and is located in the southeast section of the reservation near the sewage treatment plant. It is designed to handle from 4-1/2 to 7 tons of combustible trash and garbage during an 8 hour period and is equipped with heat coils and washing facilities so that all cans may be returned to their organizations properly cleaned. Sometime ago the fire brick in the combustion chamber became loose and the incinerator was out of service for several months. During that time a temporary incinerator and a grate built by the Post Engineers was used. The operation of this temporary equipment was unsatisfactory in that the loose burning and burned papers were carried into the air by the up draught of the burning process and littered the neighborhood area for several hundred yards.

Garbage is disposed of by gift to a civilian. An agreement was drawn up with a Mr. David Squires, a Newfoundlander, which states that he will collect the garbage from the messes at a time and frequency of the collections. A clause in the agreement further states that said agreement could be terminated by either party on two weeks' notice. The contractor's equipment consists an open truck in which he has about ten barrels of various sizes. Routine collection varies slightly in the Winter but is generally regular during the other seasons of the year. Several times the contractor failed to appear during the Winter and the garbage was transferred to the Incinerator by the Unit Messes and there burned. All permanent buildings have a rat proof alcove built into the rear of the building which accommodates an adequate number of cans for waste separation. This alcove is supplied with running hot and cold water and after the garbage is emptied the cans are scrubbed with hot water and soap. The care of the cans and racks at the various messes is excellent.

b. Fort McAndrew. The high temperature type refuse incinerator has been in operation since the first of the year 1943. A schedule has been worked out which satisfactorily handles all the combustible trash and garbage besides delivering the cans properly washed to the mess halls. At one time the work of the man burning this garbage and combustible material was difficult because the wastes were not properly segregated at the point of origin. It was found that tin cans, bottles and other noncombustible material was being mixed with the material intended for the incinerator. This practice was curbed by instructions through Post Memorandums and the refusal of collectors to take any containers until all noncombustible trash had been removed.

- Harmon Field. The question of garbage and its ultimate disposal has been a problem of much concern for sometime at Harmon Field. It had been announced that garbage was available for hog feeding but none of the local people were apparently interested. Attempts have been made to bury it with unsatisfactory results. Rats at the dump are accepted as an integral part of the rubbish and garbage. As of April 1944 five incinerators of the inclined type were built and burned out. An inspection of the last burned out incinerator revealed that it was not properly designed. A well designed and carefully operated incinerator would serve the purpose provided the garbage be delivered in as dry a condition as possible. Another incline plane incinerator was completed in November 1944 and is now in operation. Sewage disposal at Harmon Field is by a regular sewer system and the outfall discharges into St. George's Bay without creation of any nuisance.
- <u>d</u>. <u>Gander Field</u>. Sewage disposal at this air base upon the arrival of United States troops was found to consist of the following methods of disposal:
 - (1) Defecation on the ground promiscuously by Newfoundland laborers employed by the Atlas Construction Company. Later this company used pail latrines which were emptied into a large open pit.
 - (2) Two inadequate septic tanks serving the Royal Canadian Air Force and the United States Area. There was also one septic tank for the Canadian Army Area. A permanent disposal plant of the Dorr Clarigister type accommodates a population of 10,000. This plant was completed in late 1941.

Refuse disposal methods were poor. At that time there were two inadequate incinerators resulting in garbage lying around the area for the rats to eat. The garbage dump came under the direct supervision of the United States Army in August 1944. However, it continues to be used by all the allied forces in this area and by this arrangement it has been possible to control the disposal activities in the dump area in a much better manner. The sewage disposal plant and the water supply system at this base are under the control of the Royal Canadian Air Force.

7. Control of Insects.

a. Flies. Flies are very prevalent in Newfoundland during the months of August, September, October and November. However, all windows and doors in this command are properly screened with number eighteen wire screening and with the use of fly swatters, fly papers and sprays, all buildings are kept fairly free of these insects.

- <u>b.</u> <u>Mosquitoes.</u> Experience has proven that the mosquito situation at the bases is merely a mild pest problem at the worst. The prevailing strong breezes help in reducing the presence of mosquitoes on the base sites. None have been identified as a disease bearing type.
- c. <u>Ticks</u>. A type of tick identified in this region has been the Haemaphysalis leporis-palustris, the common rabbit tick. It is understood that this tick is prevalent in all areas of North America and that it is capable of transmitting tularemia and Rocky Mountain spotted fever among animals. However, it does not attack man.
- d. Fleas. The flea which has appeared here has been identified as the European human flea (Pulex irritans). Control measures applied with success have included increased cleaning of the barracks and sulphur fumigation. Pyrethrine powder has also been used.
- Cockroaches and Bedbugs. Cockroaches and bedbugs have to some extent infested practically all the buildings of the various posts in Newfoundland. Responsible officers were informed that the irradication is accomplished only by persistent effort on the part of all concerned. Single applications of insecticides are not enough. The present system of control is to have two civilian employees of the Engineer Corps disinfect the affected areas. The program calls for an initial application of any of the available insecticide material followed by periodic applications as long as the particular infestation exists. When in the opinion of the Base Sanitary Corps Officer the infestation is under control the responsibility of routine application of the insecticides is passed onto the unit commander. Officers responsible for barracks and other installations on the post were provided with a list of insecticides which were available in this command. In addition the method of application for each type of insecticide was also furnished them. This command has used the following insecticides:

Roach powder (insecticide powder, roach, QM Stock # 51-I-210)
Finished spray (insecticide liquid, finished spray, QM Stock # 51-I-169)

Borax (borax, powder, QM Stock # 51-B-599)
Methyl bromide (methyl bromide, 20 cc ampule, QM Stock # 51-M-888)
Barium carbonate (barium carbonate, QM Stock # 51-B-152)
Delousing powder (insecticide powder, delousing, QM Stock # 51-I-180)
Freon bombs (insecticide, aerosal, 1 pound, QM Stock # 51-I-159)

Fumigation, using hydrocyanide, has been resorted to several times. In July 1944 the Base Sanitary Corps Officer had six large civilian quarters at Harmon Field fumigated with this gas. The results were excellent. However, the responsible officer was informed that continued efforts must be made towards keeping the barracks free of bedbugs and roaches by employing sprays and powder frequently.

8. Control of Rodents.

a. The only species of rats observed in this command has been the brown rat. Rats at Fort Pepperrell have never assumed a proportion of infestation although occasionally they have appeared singly or in small groups in different sections of the post. Since this post is close to a seaport city it was felt that rats might be a cause of an outbreak of disease. To date, however, no such diseases have been traced to the presence of rats. Loss of Quartermaster supplies because of rats has been negligible since the majority of warehouses being used are constructed of concrete. Rats were present in large numbers in some old structures which were located on property adjacent to the Post. When this property was purchased by the United States Army the buildings were burned because of their unsanitary condition and because they provided harbourages for rats. A large rat population was also found at a rubbish dump located approximately one mile from the post. While garbage is not supposed to be dumped there occasional traces are found. In the Autumn of 1944 a campaign was started to eliminate them by poisoning but freezing weather interfered. However, the campaign was resumed as soon as the weather permitted. Fumigation has never been used as a method for destroying rats since their harbourages are generally underneath buildings or in adjacent areas. At one time a large building on the post was fumigated because of bedbug infestation and it was found that several rats were killed as a result of hydrocyanide gas. Barium carbonate has been employed with very satisfactory results.

b. Rats reached a proportion of infestation at Fort McAndrew in the early part of 1943. As a result a Board of Officers was appointed in September 1943 which was composed of a representative from the Quartermaster Corps, Medical Corps and the Corps of Engineers. Their sole purpose was to make recommendations for the control of pests and rodents. The following measures were put into effect by the Board:

(1) A detail of three enlisted men was provided consisting of one man from the Medical Department as poison and food technician, one man from the Engineer Corps as rodent proof technician and one man from the Quartermaster Corps as supply technician.

Their sole duty was pest and rodent extermination. This detail of men was under the direct supervision of the rodent control board and employed the use of traps, poisons, ratproofing measures and other available means until the problem was under control.

(2) Cargo vessels which berthed at the United States
Army Dock were required to use rat guards on all
hausers.

Excellent results were secured by the measures recommended by this Board. Since that time only routine procedures have been necessary to control the routine infestations at Fort McAndrew.

c. Rodent Control Boards were also appointed and were active in stations now under the control of the United States Army Air Transport Command. The same methods were used and recommended by them as they have been employed by the Newfoundland Base Command stations.

III SANITARY ENGINEERING

1. The sewage treatment plant at Fort Pepperrell was placed in operation in February 1943. The plant provides for an average daily flow of 450,000 gallons, two Imhoff tanks with sludge storage space for a period of 9 months, chlorination of the influent and effluent and a closed covered sludge drying bed. The effluent is discharged in the outflow stream of Quidi Vidi Lake. The stream cascades over a rocky bed for a distance of about 300 feet before emptying into Luidi Vidi Harbour. Some difficulties were experienced in getting the plant started, such as, slight foaming, which was overcome by the addition of hydrated lime, lack of equipment for running any kind of checks or tests until December 1943, and proper digested sludge was not being produced by the plant for quite sometime. The Base Sanitary Corps Officer reported in January 1944 that since the operation of the plant had begun it had never been possible to alter from an acid digestive stage to the alkaline digestive stage which provides a well-digested sludge. He advised the addition of hydrated lime in order to cut down the acidity. He further reported at the time that after extensive study of the temperature of the sludge its average temperature was not conducive to the bacteriological activity required for proper sludge digestion even though hydrated lime was added. During February 1944 discussions with the Base Engineer brought out the idea of cutting one tank out of service and using it as a separate sludge digester until some sludge would be properly digested. This sludge could then be used for seeding material. A boiler and necessary pipe was installed in the east tank after it had been screened. Raw sludge was transferred from the west tank to the east tank. Heat and lime were applied. Temperatures of 90

degrees Fahrenheit were usually maintained and pH values of 7.8 were reached. Gradually the brown undigested sludge turned to grey. The offensive odor of raw sludge then took on an odor of digested sludge. Some digested sludge from the Canadian Sewage Treatment Plant was received and added as seeding material. The east tank was then put into service again. Contact with the sewage, however, brought the sludge temperature down to 58 degrees Fahrenheit. A factor which would have some affect on the sludge temperature is the volume of storm water which finds its way to the sewage treatment plant. Studies are being made to determine points of entrance of storm water.

- 2. Frior to the permanent water supply installation at Fort McAndrew, a temporary installation with the same source of water was in operation. Considerable pollution of Clarke's Pond resulted during construction of the permanent pumping station. The turbidity of the water was greatly increased due to excavation at the site of the pumping station. The temporary pumping station was located just west of the station on Clarke's Pond. The following report of the temporary water supply system was made in September 1942 and is hereby presented:
- a. Pumping Stations. The temporary pump stations are located just west of the permanent station on Clarke's Pond. The Army maintains two gasoline engine-driven horizontal centrifugal pumps, of 1,250 and 750 gpm capacity, which are now intended as standby or auxillary equipment to the temporary Navy pump installations. The Army has a 12-inch suction to its pumps with an 8-inch discharge line to the permanent 12-inch discharge line. The Navy pump house, located adjacent to the Army station consists of two 500 gpm and one 350 gpm electrically-driven centrifugal horizontal pumps, each with its own suction line to the pond. Electricity is from the United Towns Power and Light Company. One 6-inch discharge carries water to the permanent 12-inch line mear its junction with the Army temporary 8-inch discharge pipe. Because there is very little floating storage capacity on the system it is the practice to operate normally the electricallydriven pumps to maintain a pressure of 35 to 50 pounds per square inch at the pump house. During the day, when the demand is high, a gasoline-driven pump is thrown in to maintain the pressure. At night part of the discharge from the Navy pumps is bypassed back to the pond. In cases of power failure, or breakdown of the Navy pumps, the Army is capable of carrying the load.
- b. Storage and Distribution. The 500,000 gallon storage tank, although full, is not being operated due to absence of the altitude valve. Water in the tank is kept as reserve for fire. Therefore, except for a temporary 25,000 gallon elevated storage tank there is little capacity available for absorbing variations

in the demand for water. A temporary pumping station was built on Shag Pond for the first water supply at the site. This pump station is still connected to the distribution system and constitutes a serious cross connection. The pumps are operated cocasionally for filling sprinkling trucks, etc.

- c. Flow. There is no way of measuring the amount of water pumped from the temporary pump stations. The Navy uses an average of 600,000 gpd. It is estimated that the total daily consumption is about 1.3 to 1.5 mgd. However, when the gasoline-driven pump is operated in addition to the Navy pumps a peak flow of about 2,600 gpm. or 2.7 mgd. is reached.
- d. Treatment. Specifications called for the installations in the temporary Army pump station of a Wallace and Tiernan (MFVM) vacuum type, manual control, solution feed chlorinator of 1 to 40 pounds per day capacity. This was not delivered, and in its place a similar piece of equipment of only 6 pounds per day capacity was installed. This was clearly inadequate and an electrically-driven Proportioneers hypochlorinator was added by the Navy. The gas chlorinator injects chlorine into the suction line of one of the Navy pumps while the hypochlorinator feeds into the discharge side. Either one can be readily tapped to the Army pump lines. Despite the variation in rate of pumping over a 24 hour period, the rate of chlorination remains fixed. Chlorine was dosed at the rate of 6 pounds per day from the gas chlorinator plus about 26 pounds per day of available chlorine. It was determined in the laboratory that a dosage of 2.0 ppm will yield a chlorine residual of 1.0 ppm after ten minutes contact. On this basis and assuming a flow of 1.5 mgd the chlorine dosage would be sufficient if applied in proportion to the flow of water. It is entirely insufficient when the gasoline-driven pumps are operated with all the Navy pumps as is frequently the case. Of 33 chlorine residual determinations made by the Area Engineer's Office from September 6 through September 26 at various points on the Army distribution system, the average reading was 0.15 ppm; all samples contained 0.05 ppm residual chlorine or less. Residual chlorine of at least 0.5 ppm should be maintained on the system while the temporary installation is in operation. During periods of power failure, which appear to be not infrequent, all water is pumped by the gasoline engines. However, the hypochlorinator, which has been applying 75 percent of the chlorine is not operative during this period and the water is underchlorinated. The Army pump station and chlorinators were operated by the Contractors but are now under the Post Utilities Office.

- e. Control. The Area Engineer's Office makes three residual chlorine determinations on alternate days at different points on the distribution system. Determinations of residual chlorine have not been made at the pump house to control the chlorination of the water. There is no tap at the pump house from which a sample of water being delivered to the system may be collected for this purpose. Bacteriological samples collected at the hospital are submitted to the Newfoundland Government Laboratory for analysis about twice monthly. The contractor on the Navy side makes routine chemical analyses of water, including determinations of pH, alkalinity, CO2 and chlorides.
- Prior to the construction of the permanent water supply system at Harmon Field a temporary installation was in use. In this system water from Warm Creek was pumped from a wet well through a concrete suction line by two gasoline-driven horizontal pumps from 800 to 1200 gallon capacity. These engines and pumps operate for six one-hour periods every 24 hours but seldom at the same period. Chlorine was drawn into the suction line through rubber tubing from a wooden keg with about 10 gallon capacity. This keg is filled with water to which one half can of HTH is added prior to each one hour pumping period. (This amount of HTH contains one and a half pounds of available chlorine.) It took about 35 minutes of one hour pumping to empty the keg of chlorine solution. Thus for 25 minutes of each hour chlorine was added to the raw water. Inasmuch as the water is pumped directly into the distribution system, with all surplus over that being used at the time going to the storage tank, about 50 percent of the water pumped may have been distributed without being chlorinated.

IV EPIDEMIOLOGY

- 1. Immunization. Only the routine immunizations, typhoid, smallpox and tetanus have been kept currently complete. In 1942 all members of this command were inoculated with yellow fever vaccine. No other type of immunization has been required.
- 2. Intestinal Infections. The number, rate and type of intestinal infections for each station by year is presented. The figures for the two stations in Newfoundland under the administrative control of the Air Transport Command, North Atlantic Division, are not included since it is felt that it might constitute a duplication through the submission of a similar report by the North Atlantic Division Command.

Fort Pepperrell

			Number of Cases	Rate Fer 1,000 Per Annum
1941	Diarrhea		1	0.87
1942	Diarrhea Dysentery,	unclassified	32 1 4	20.27 2.53
1943	Diarrhea		40	35.87
1944	Diarrhea Dysentery,	bacillary	49 1	19.36 0.40
1945 (To 3	Diarrhea O Jun)		19	18.26

Fort McAndrew

		Number of Cases	Rate Per 1,000 Per Annum
1942	Diarrhea	21	25.11
1943	Diarrhea	39	28.28
1944		$(\mathbf{x}, \mathbf{x}, \mathbf{y}, \mathbf{y}, \mathbf{z}, z$	0.53
1945 (To 3	Diarrhea O Jun)	15	18.10

During the months of August and September 1942 there was a moderate epidemic of diarrhea in the city of St. John's; an estimated number of ten to twelve thousand cases. During this period members of this command were ordered not to eat or drink in any establishment in the city. The few cases on the post demonstrated the value of the supervision of food, messes and water which exist in the military service.

3. Infections of the Respiratory Tract and Infections Transmitted by Discharges from the Respiratory Tract.

Fort Pepperrel

		Number of Cases	Rate Per 1,000 Per Annum
1941	Nasopharyngitis	190	164.93
	Bronchitis	32	27.78
	Tonsillitis (All types)	, 170	60.76
	Pharyngitis	16	13.89
	Laryngitis	13	11.28
	Influenza	6	5.21

Fort Pepperrel

	<u>Nu</u>	mber of Case	s Rate Per 1,000 Per	Annum
1941	Measles	13	11.28	
and the same	Measles, German	23	19.97	
	Mumps	8	6.94	
	Pneumonia, primary,			
	not atypical	5	4.34	
	Scarlet Fever	5 1	0.87	
	Vincent's Angina	6	5.21	
	Meningitis, meningococcu		0.87	
1942	Nasopharyngitis	360	227.99	
	Bronchitis	51	32.30	
	Tonsillitis (All types)	161	101.96	
	Pharyngitis	18	11.40	
	Laryngitis	21	13.30	
	Influenza	5	3.17	
	Coryza	5 1 7 1	0.63	
	Measles	7	4.43	
	Measles, German	1	0.63	
	Mumps	17	10.77	
	Pneumonia, primary,			
	not atypical	43	27.23	
	Tuberculosis (All forms)	4	2.53	
	Vincent's Angina	21	13.30	
1943	Nasopharyngitis	515	461.88	
	Bronchitis	. 81	72.65	
	Tonsillitis (All types)	241	216.14	
	Pharyngitis	13	11.66	
	Laryngitis	22	19.73	
	Coryza	5	4.80	
	Measles	13	11.66	
	Measles, German	51	45.74	
	Mumps ·	23	20.63	
	Pneumonia, primary	26	23.32	
	Pneumonia, primary,		- /-	
	atypical	3	2.69	
	Pneumonia, secondary	3 5 1	4.80	
	Scarlet Fever		0.90	
	Tuberculosis, (All forms)		17.94	
	Vincent's Angina	7	6.28	
	Meningitis, cerebrospina	1 3	2.69	
1944	Nasopharyngitis	142	56.10	
	Bronchitis	30 .	11.85	
	Tonsillitis (All types)	152	60.06	
	Pharyngitis	17	6.72	
	Laryngitis	9	3.56	
	Influenza	1	0.40	

Fort Pepperrell

Number of Cases Rate Per 1,000 Per Annum

1944 Coryza	1	0.40
Mumps	5	1.98
Pneumonia, primary	6	2.37
Pneumonia, primary, atypical		1.19
Scarlet Fever	1	0.40
Tuberculosis (All forms)	4	1.58
Vincent's Angina	16	6.32
Meningitis, cerebrospinal		0.40
		·
1945 Nasopharyngitis	112	107.58
(To 30		
Jun)		
Bronchitis	9	8.64
Tonsillitis (All types)	59	56.68
Laryngitis	12	11.52
Measles	ī	0.96
Measles, German	1	0.96
Mumps	1	0.96
Pneumonia, primary	1	0.96
Pneumonia, primary, atypical	1	0.96
Scarlet Fever	. 1	0.96
Vincent's Angina	10	9.60

In March 1943 Fort Pepperrell encountered a minor epidemic of German measles. Inasmuch as we did not have facilities for isolation at that time one of the nearby barracks buildings was used. These cases were very well isolated and the outbreak was readily put under control. Shortly after there was an outbreak of mumps which was easily isolated in a section of the hospital.

Fort McAndrew

	<u>N</u>	umber of Case	s Rate Per 1,000	Per Annum
1942 Nasopharyng Bronchitis	itis	21.3	254.70 34.68	
Tonsillitis	(All types)	64	76.53	
Pharyngitis Laryngitis		18	21.52 10.76	
Influenza Measles		1 4:	1.19 4.78	
Measles, Ge Mumps	rman	6 2	7.17 2.39	
Pneumonia,	primary	19	22.72	

Fort McAndrew

	Number of Cases	Rate Per 1,000 Per Ar	num
Pneumonia, primary, atypical Pneumonia, secondary Scarlet Fever Vincent's Angina Meningitis, meningococ	3 3 5 2 cus 4	3.59 3.59 5.98 2.39 4.78	
Bronchitis Bronchitis Tonsillitis (All types Pharyngitis Laryngitis Measles Measles, German Mumps Pneumonia, primary Pneumonia, primary, at Pneumonia, secondary Scarlet Fever Tuberculosis (All form Vincent's Angina Meningitis, meningococ Influenza Grippe	28 24 5 17 91 4 ypical 6 1 2 s) 9	361.13 39.15 81.22 20.30 17.40 3.63 12.32 65.99 2.90 4.35 0.72 1.44 6.53 4.35 2.90 0.72 1.44	
1944 Nasopharyngitis Bronchitis Tonsillitis (All forms Pharyngitis Laryngitis Measles Mumps Pneumonia, primary Pneumonia, primary, at Pneumonia, secondary Tuberculosis (All form Vincent's Angina Meningitis, meningococ	5 9 1 3 3 ypical 2 2 s) 5	82.10 14.30 76.27 2.65 4.77 0.53 1.59 1.59 1.06 1.06 2.65 2.65	
1945 Nasopharyngitis (To 30 Jun) Bronchitis Tonsillitis (All forms Pharyngitis Laryngitis Vincent's Angina	77 46 22 8 1	92.92 55.52 26.57 9.66 1.20	

4. Miscellaneous Infections.

Fort Pepperrell

Numb	er of Cases	Rate Per 1,000 Per Annum
1941 Scabies	6	5.21
1942 Rheumatic Fever Scabies		2.53 5.70
1943 Scabies	23	20.63
1944 Hepatitis, infectious	. 2	0.79
Rheumatic Fever	1	0.40
Scabies	24	9.48
Fever of Undetermined Origin	1	0.40
1945 Hepatitis, infectious (To 30		0.96
Jun)Scabies		18.26

Fort McAndrew

	Number of Cases	Rate Per 1,000 Per Annum
1942 Rheumatic Fever		3.59
Scabies	. 1	1.19
<u>1943</u> None		
1944 Hepatitis, infectious	. 1	0.53.
Scabies	. 2	1.06
1945 None (To 30 Jun)		

5. <u>Venereal Diseases</u>

Fort Pepperrell

	Nt	umber of Cases	s Rates Per 1,000 Pe	er Annum
1941 Gonorrhea		32	25.17	•
Syphilis	. ,	7	6.07	

Fort Pepperrell

	Number	of Cases	Rate Pe	r 1,000 Per	Annum
1942 Gonorrhea Syphilis		42		26.60 4.43	
		27			·
1943 Gonorrhea Syphilis				24.22 19.73	
1944 Gonorrhea		25		9.88	
Syphilis		5		1.98	
1945 Gonorrhea (To 30		8		7.68	
Jun)Syphilis		0		0	
	Fort McAn	ndrew			
	Number	of Cases	Rate Per	1,000 Per	Annum
1942 Gonorrhea		33		39.46	
Syphilis		3		3.59	
1943 Gonorrhea Syphilis		49		35.53 5.08	
					9
1944 Gonorrhea Syphilis		3	6	21.19	
1945 Gonorrhea		3	e	3.62	
(To 30	* *			- 00	

V VENEREAL DISEASE CONTROL

Jun) Syphilic

1. Venereal disease conditions in Newfoundland can best be shown by quoting a portion of two reports covering surveys on civil health services in Newfoundland. The first report was written by Assistant Surgeon General R. A. Vonderlahr and PA Surgeon Roger Heering, United States Public Health Service, in 1940, extract of which is hereby presented.

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"In the absence of morbidity reports or special survey data, it is impossible to estimate at present the extent of the venereal disease problem or to make final plans for venereal disease control throughout Newfoundland. Routine serologic tests performed in the antenatal clinic on women

in the lower and middle classes show that approximately 8 percent are infected with syphilis. On the other hand, routine serologic tests over the past few years on admissions to the mental hospital with an average patient population of 600 have been positive in only 2.6 percent of male and .7 percent of female patients. It is the opinion of the Secretary to the Department of Public Health and Welfare that the venereal diseases have only in recent years become a major problem in Newfoundland.

"During the past two years a venereal disease clinic has been conducted in St. John's, and this clinic will be described in detail when health services in St. John's are presented. Treatments may also be given by the family doctor to any patient at the latter's option. The Department of Public Health and Welfare provides the family physician with all the necessary supplies and pays him at the rate of \$3.00 for each injection of arsphenamine or heavy metal. No special appropriation has ever been made for the payment of physicians for this service, the cost being met from the general appropriation for medical care made to the Department. The Secretary to the Department stated that there had never been any limitation on the payments made to private physicians for the administration of antisyphilitic treatments. It is the impression of the Secretary, however, that present finances will not permit the organization of a complete venereal disease control service along modern public health lines even in the Avalon Peninsula.

"The Fublic Health Laboratory at St. John's provides services to the physicians of the country for the diagnosis of syphilis. These services will be described later in the report, but the location of the laboratory in St. John's makes the use of this service difficult or impossible for doctors in the more remote parts of the Island.

"Case-finding work in syphilis control is not done, and case-holding is very limited. Very little in the way of public education has been developed in the control of syphilis and gonorrhea. There are no provisions for the public health control of gonorrhea and treatment methods do not seem to include the use of the sulfonamide compounds.

"The laws of Newfoundland and regulations made thereunder should make possible an aggressive and efficient campaign against the venereal diseases. The development of a practical program has, however, been curtailed by lack of funds, shortage of trained personnel and the absence of necessary institutional facilities. The fulfillment of these needs plus the development of an aggressive public educational program should lessen the venereal disease problem materially in a relatively short period."

2. The second report was compiled by Lieutenant Colonel Leon A. Fox, Medical Corps, in 1941, and he stated:

"The venereal diseases are certain to prove a problem in Newfoundland. However, this is no special indictment of the conditions on the Island. I know of no place between heaven and hell where we can station troops in proximity to a civilian population without being confronted with this problem. I have given very careful attention to the conditions in Newfoundland, especially in the city of St. John's and I do not believe there is any special hazard in St. John's that should cause us worry or alarm in spite of the alarming reports that have been rendered. If we have a high incidence of venereal diseases, it represents a very serious neglect on the part of the personnel in command of our troops. It is believed that if we take the ordinary approved precautions then there is no special problem that is inherent in the city of St. John's or the island of Newfoundland."

3. When the above reports were written venereal disease control by the Newfoundland Health Authorities in the civilian population was unsatisfactory and almost nonexistent. Since that time many changes have occurred. A campaign was instituted in October 1942 by the Surgeon of the Newfoundland Base Command in an attempt to reduce the increasing number of cases incurred by members of the United States Army. The plan included measures such as frequent group lectures on venereal disease by a medical officer, sex morality lectures by the Chaplain, frequent showings of venereal disease films, furnishing of rubber prophylaxis to the men who desired them, free of charge, recommending more recreational facilities be provided and stimulating intercompany competitive sports. In November 1942 the surgeons of the United States Army, Royal Canadian Army, Navy and Air Force, jointly recommended to their commanding officers that an appeal be made by them to the Commission Government of Newfoundland for a vigorous and immediate enforcement of the Newfoundland Public Health and Welfare Act of 1931. The provisions already contained in this act could with proper enforcement practically irradicate venereal disease from this country. As a result of this recommendation commanding officers of the various allied forces convened and decided upon an appeal to the Newfoundland Government. Major General Brooks, Commanding General of the United States Army in Newfoundland at that time, was chosen to represent those convened and write the appeal. The appeal was graciously received and action was instituted by the Department.

- 4. Improvement in the methods of handling suspected female sources of venereal disease was rather slow in the Spring and Summer of 1943 but by the Autumn of that year considerable progress had been made and the Sydney Loch Hospital was opened for the treatment and detention of recalcitrant and delinquent venereally infected women. In addition two male and two female treatment clinics are conducted per week as well as one female clinic for the diagnosis of gonorrhea. It is staffed by four nursing investigators and one male investigator and has the assistance of forty district nurses and thirty medical health officers in various parts of the country.
- In October 1943 a venereal disease division was added to the Newfoundland Department of Public Health and a full time physician was placed in charge of this work. The health officer selected for this position was Dr. James McGrath, a well-trained and hardworking Public Health Officer, who has, since the inception of this venereal disease division, established an efficiently functioning venereal disease control program. He cooperates fully with military authorities and quickly places under control all suspects reported. It should be brought out that the establishment of the detention hospital and assignment of a full time physician in charge of venereal disease measures was obtained only after considerable persuasive pressure had been exacted by the Commanding General of the Newfoundland Base Command, the American Consul and the heads of Medical Departments of all the allied forces. Complete harmony and cooperation now exist and results obtained in source follow-up and control of Newfoundland civilian population compare favourably with those obtained in the United States and Canada despite the difficulties of transportation existing in this country.
- The incidence of venereal disease in Newfoundland insofar as location goes is extremely spotty and varies from those regions where there is almost no infection, to sections where the population is heavily infected. As examples, Dr. McGrath states that the town of St. Mary's, Newfoundland, where he was medical health officer for eleven years serving a population of 4,000, had only one case of gonorrhea and fifteen cases of syphilis during the entire time he was there, and these cases appeared at about the time when a considerable part of the male population migrated towards the larger centres to be employed with the building of military bases. In contrast the area of Stephenville and St. George's on the west coast of Newfoundland, in the vicinity of Harmon Field, shows a high incidence of venereal disease as is indicated by forty-nine positives out of a total of one hundred and fifteen routine blood serology examinations. Other figures indicate that the rate of incidence of venereal disease infection is low, outside of certain recognised places. In the case of the village of Harbour Grace where eight hundred men were given physical examinations for the military service, blood serology tests being done on all of them, only one case

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of syphilis and one case of gonorrhea were found in the entire group. Recently medical examinations were done on a total of 1949 Newfoundlanders by medical officers of the United States Army prior to their employment in the United States by the War Foods Administration. This group came from all over Newfoundland and included a number of women. Blood tests were done on all applicants and vaginal smears for gonococci were taken on all the women. In this group one applicant was found to have gonorrhea and thirty to have positive blood tests for syphilis.

7. The venereal disease control setup in Newfoundland functions exactly like the program in the continental United States. Commanding officers and noncommissioned officers of all organizations manifest great interest and put considerable effort into control measures. Each of the four Army posts has a venereal disease control officer who manages all activities in connection with control. The Post Medical Officer and V-D Control Officer at Fort Pepperrell was designated Base V-D Control Officer and he assists the Base Surgeon in correlating the program of control at all posts in Newfoundland as well as compiling and forwarding information relative to venereal disease source both in Newfoundland and other countries. This officer maintains close liaison with the Newfoundland civilian V-D Control Officer and the Hygiene Officers for the Canadian Navy, Army and Air Force in Newfoundland.

/s/ Francis E. Utley

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